

Views on Taxed Questions
Kinsley.

GIFT OF



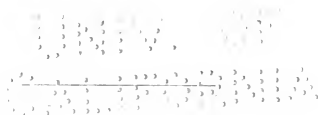
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P. 114

VIEWS
ON
VEXED QUESTIONS.

BY
WILLIAM W. KINSLEY.



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TO HER
WHO WILL READ BETWEEN THE LINES A RECORD OF THE
HOME-LIFE AT INGLESIDE,
THIS VOLUME,
AS A SOUVENIR,
IS AFFECTIONATELY DEDICATED
BY THE AUTHOR.

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PART FIRST.

THE SUPERNATURAL.

MENTAL LIFE BELOW THE HUMAN.

WHEN DID THE HUMAN RACE BEGIN?



THE SUPERNATURAL.

DRIFT OF MODERN THOUGHT.

THE laws of nature, which are by many erroneously considered self-operating entities, are simply the names of methods of working. The vitalizing forces themselves are hidden behind an impenetrable veil of mystery. Of the certain existence of secret somethings wholly distinct from the particles of matter wrapped up within the folds of germs or within the faces of crystals we have palpable proofs in phenomena, but the most searching scientific analysis has never yet lifted or rent the veil. We think we account by gravity for the rush of the avalanche and the tides of the sea. Hydrogen and oxygen embrace at the touch of fire, and we call it chemical affinity. Frost utters some potent spell over the particles of a water-drop and they fall into line and effect symmetrical combinations with the precision of drilled infantry, and we flatter ourselves we have solved the riddle when we christen it crystallization. Kernels of wheat taken from the hand of an Egyptian mummy, where they had lain through the long roll of three thousand years seemingly dead, when dropped into the earth were

found filled with skilled alchemists who, in unknown proportions and by unknown processes, compounded in their crucibles ingredients of dew, air, soil, and sunlight. That there should have been power left to produce vegetable cell-growth after this death-like sleep of thirty centuries we may well pronounce a mystery, but what that was which slept and in its waking goldened the fields with grain again is a mystery infinitely greater. Two embryos so minute as scarcely to be discernible to the naked eye, their points of difference seldom, if ever, detected even when placed in the focus of the microscope, will, when favorably circumstanced, develop, one into a winged butterfly, the other into a bounding tiger: why, none can tell.

Among the lower orders of creation are exhibitions of a wisdom absolutely perfect in prescribed spheres, existing prior to experience and independent of the aids of instruction. Men partially attain by protracted efforts and after multiplied failures what insects and brutes reach at a single bound. The ultimate nature of this animal instinct, the methods of its creation and maintenance, its springs of action, its final destiny, are among the subtlest of the secrets that hide behind the manifestations of the outer world. Philosophy has long sought for them, but, baffled and blinded, it now stands with uncovered head in the presence of their phenomenal glory. We indeed meet mystery in the very instrument we use for the search, in that introvertive power, self-consciousness, that *ego* seemingly sitting apart, recognizing and judging thought-processes, even attempting an analysis of itself.

To the ancients nature seemed a chaos of conflicting

forces. Their mythologies bear traces of the perplexity and awe with which they witnessed her phenomena. Knowing comparatively nothing of the systematic precision of her laws, possessed of an intuitive religious belief, and daily experiencing that each man's body is in subjection to a distinct intelligence with whose individuality it can by no intimacy ever become merged, they readily reasoned that every outside object was but the incarnation of some divinity. Hence to the Scandinavians rivers, rocks, and soil were the blood, bones, and muscles of Imer. The Giants, the Cyclops, and the Titans were the three classes of deities into which the Greeks divided the elemental forces. Rivers and fountains were considered active personalities and worshipped as divine. *Æschylus*, in one of his tragedies, introduced the fountains as pitying the chained *Prometheus* and complaining of *Jove's* tyranny. We to-day may call this simply fine poetic personification. It was once believed in as stern realism. *Enceladus* was the fire-god of the hills. The rock and the whirlpool in the Straits of Messina were rapacious sea-monsters; kingfishers were the winged spirits of *Ceyx* and *Halcyone*, whose presence calmed the tempest. *Iris* was embodied in the rainbow, and when the sky was lit with her bent beauty she was on an errand of peace to the dying to break the flesh-fetters of the soul. While they thus believed in the incarnation of deities in the different objects of nature, they entertained a kindred though conflicting notion that these objects were simply kingdoms subject to their control. *Nereus* and his fifty beautiful nymph children lived in crystal sea-palaces and were governmental ministers to *Neptune*.

Not a condition, not a change in the world of the senses, not a mental phantasm, branch of industry, past event, dreaded retribution, or unfulfilled desire, but was believed, if enveloped in mystery, to be in the immediate presence and subject to the direct control of the gods. Indeed, in that early day the Divine influence was judged by mankind to be as potent and pervasive as light and air. The top of Olympus disappeared above the clouds, and in consequence was considered the place where Jupiter held court. The Styx, a river in Arcadia, from being impregnated with fatal poisons and suddenly sinking from sight, was supposed to roll through the dominions of Pluto, its black current forming between this and the other life a barrier impassable except to Charon the boatman and departed souls who could pay the fare of the ferry. The Garden of the Hesperides, the Elysium of the Greek fancy where the golden apples grew, lay just beyond the line of the horizon, because that then constituted the boundary of the known.

A vital change has since marked man's interpretations of nature. Science now boldly analyzes what was once worshipped as divine. An insatiable curiosity now pries into secrets which long escaped examination through an undue religious awe. Forces that were supposed to be in chaotic conflict have been found correlated, working by fixed methods and perfecting different parts of a single plan. In short, the vagaries of a superstitious fancy have happily given place to the more careful discriminations of an informed reason. Astronomers have catalogued the stars, foretold eclipses, weighed planets and suns, thrown a measuring-line

about the rings of Saturn, disentangled with their telescopes the light of *nebulæ*, computed the distances and, with the aid of the lately-invented spectroscope, even the rates of speed of some of the fixed stars. Comparative anatomists have arrived at such extensive and accurate knowledge of the laws that govern in the structure of animal organisms that they can determine from single bones the species, general structure, habits, and homes of those of which they once formed part. Chemists, by retort and crucible, have unmasked the elements, and discovered the conditions that unfetter their forces. Geologists have so diligently studied the leaves of the stone record, turned by the fingers of earthquakes, that they have carried the torch of knowledge beyond the drift, past the mammal, the reptile, and the fish, back of the forests of fern, back even of the birth of continents, the break of day, or the breath of life.

There is something imposing in the aggressive spirit of the present. There is a dash, a boldness, a persistency in investigation never before known. Intricacies and perils act as incentives. Every field of thought is undergoing systematic research. Every day uncovers some secret. The sun, despite its blinding splendor, has been forced to furnish photographs of itself and submit to a chemical analysis of its atmosphere. The dangerous ice-fields of the North have proved irresistible charms thrown about the open polar sea. Not long after the intrepid Kane brought back news that he had caught the gleam of its waves as they broke ice-free in the sunlight, the American Congress, swept along by this strong tide of the times, equipped a corps of scientists in hope that they might force

their way a few leagues farther into the desolate realms of frost.

Two threatening evils are, however, becoming manifest in the midst of this universal quickening of the intellect which has resulted from such eager search for secrets, and they can be directly traced to these very conquests of scientific research of which we are so justly proud.

The first is the decline of poetic taste. This has become emphatically a utilitarian age, an age of inventions. By a careful analysis and classification of phenomena we have not only discovered that natural forces work by fixed laws, but have determined in great measure what those laws are, and to utilize this knowledge has become the master-purpose of modern thought. This passion has indeed grown so intense that the ideal world has been rapidly lapsing into neglect. We may rightly glory in our steamships, railroads, telegraphs, and printing-presses. To flash an idea through three thousand miles of ocean cable, to transport passengers by steam-carriages from New York to San Francisco in a week, to tunnel the Alps, to link the Mediterranean to the Red Sea by a ship-canal, thus bringing the wealth of the Indies to the very doors of civilized life, are no mean triumphs of the mind. I would not decry their importance, but they will be costly triumphs if through their influence the earth comes to be viewed merely as a magazine of physical comforts, its mountains to be valued only for their gold-bearing quartz and its prairies for their fields of standing corn. It was designed for something higher than to serve simply as man's workshop or his dining-

hall. There are*in nature subtiler secrets than those solved by experiments in physical science, whose unveiling will demand and develop grander powers and render a much more exalted service to mankind.

The decline of the religious sentiment is the second evil resulting from this increase of knowledge. Many of the divinities of the ancient mythology have been found but vague personifications of mysteries which have since yielded to scientific analysis. The discovery that the forces in nature are conditional, working by fixed methods, has given birth to bold theorists who stoutly contend that all force is a constituent element of matter and that matter is eternal, thereby eliminating God from the universe. La Place, a supposed tower of strength in mathematical astronomy, seizing upon the suggestions of Sir William Herschel, propounded in the interests of atheism what is now known as the Nebular Hypothesis. In this he claims it possible that the worlds originated in a vastly diffused homogeneous fire-mist; that some of its particles cooling and condensing sooner than others began to attract the lighter ones, which, deviating from a straight course because of the resistance they encountered from each other, were thrown into a spiral motion which was finally communicated to the entire mass; that from this mass rings were successively disengaged and condensed about nuclei into suns from which rings were broken and condensed into planets, and from these planets, which were suns until by irradiation their flame-billows were cooled and crusted with continents and seas, rings were again broken and condensed into moons. Evolutionists still further assert that out from this dead matter thus separated, solidified,

and grouped into systems there have been evolved by the operation of natural laws through successive grades of progression all the multiform manifestations of vegetable and animal life,—tracing human genealogy back to infusoria, and claiming that these at the first were but the spontaneous product of chemical action. Herbert Spencer in his “First Principles” expressly states that “those modes of the unknowable which we call motion, light, heat, and chemical affinity are alike transformable into each other and into those which we distinguish as sensation, emotion, and thought, solar heat being the final source of the force manifested by society.” It is claimed by this school of philosophy that appetites and passions are but attractions akin to that of an acid for an alkali, that even actions of will are but chemical changes necessarily accompanying a particular organization of nervous matter. Professor Huxley, though repudiating any sympathy with Comte and the Positive Philosophy, in a paper on the “Physical Basis of Life,” which has lately attracted considerable attention in scientific circles, holds that protoplasm, consisting of carbon, hydrogen, oxygen, and nitrogen in complex chemical union, is the very matter and basis of all life. He also claims* that the properties of this protoplasm, like those of water, are simply the result of the nature and disposition of its molecules. Professor Tyndall, in his chapter on Vitality, near the close of his “Fragments of Science,” remarks, “Are the forces of organic matter different in kind from those of inorganic? The philosophy of the present day negatives the question.

* Lay Sermons, p. 138.

It is the compounding in the organic world of forces belonging equally to the inorganic that constitutes the mystery and the miracle of vitality. The tendency, indeed, of modern science is to break down the wall of partition between the organic and inorganic, and to reduce both to the operation of forces which are the same in kind but whose combinations differ in complexity. Consider now the question of personal identity in relation to this of molecular form." After speaking of the continual waste and renewal of the body, he continues, "How is this sense of personal identity maintained across this flight of molecules? To man as we know him matter is necessary to consciousness; but the matter of any period may be all changed while consciousness exhibits no solution of continuity. Like changing sentinels, the oxygen, hydrogen, and carbon that depart seem to whisper their secret to their comrades that arrive, and thus, while the *non-ego* shifts, the *ego* remains intact. Constancy of *form* in the grouping of the molecules, and not constancy of the molecules themselves, is the correlation of this constancy of perception. Life is a *wave* which in no two consecutive moments of its existence is composed of the same particles. Supposing then the molecules of the human body, instead of replacing others and thus renewing a pre-existing form, to be gathered first-hand from nature and put together in the same relative positions as those which they occupy in the body, that they have the self-same forces and distribution of forces, the self-same motions and distribution of motions,—would this organized concourse of molecules stand before us as a sentient, thinking being? There seems no valid reason to believe it would not.

Or, supposing a planet carved from the sun and set spinning around an axis and revolving around the sun at a distance from him equal to that of our earth, would one of the consequences of its refrigeration be the development of organic forms? I lean to the affirmative. Structural forces are certainly in the mass, whether or not those forces reach to the extent of forming a plant or an animal. In an amorphous drop of water lie latent all the marvels of crystalline force; and who will set limits to the possible play of molecules in a cooling planet? If these statements startle, it is because matter has been defined and maligned by philosophers and theologians who were equally unaware that it is at bottom essentially mystical and transcendental."

Note the doctrine. Merely molecular force is declared sufficient to account for the evolution of a molten mass into a peopled world. It is denied that vital force exists as an entity distinct from the molecules and their forces which make up the organism. Life is resolved into a form,—a wave, which on the disintegration of the body is gone like a dream; the *ego* consisting simply in a relation which *non-egos* bear to each other,—an empty impersonation, a figment of the fancy. So soon as the testimony of self-consciousness is thus impeached, the mind is at once afloat in a sea of doubt, and is finally left to doubt whether it doubts. This doctrine is not only a death-blow to morals and to our hopes of immortality, but effectually undermines the very possibility of any theistic faith, for our conceptions of the Divine nature are alone predicable on those of the human.

Thus, while the ancients believed that everything was God, modern materialists are seeking to exclude

God from everything. There is a golden mean of belief between the poetic pantheism of the past and the materialism of to day. The overshadowing presence of mystery gave birth to the one ; the partial solution of it, the other. A more thorough investigation will exhibit alike the weakness and the strength of both. What lies back of gravity, chemical affinity, crystallization, organic life, brute instinct, and the human mind still keeps closely veiled. That phenomena are synonymous with God, science has proved to be the mere puerility of a superstitious ignorance ; that there is no God behind phenomena, science will with equal emphasis prove to be but the proud presumption of an imperfect knowledge.

THE NATURE OF FORCE.

There are among modern scientists wide differences of opinion respecting the nature of force. Many regard forces merely as mutually convertible modes of motion, and embrace in their definition not only mechanical and chemical but even all vital phenomena. If this be true, then, as far as our powers of conception go, the existence of spirits is a myth ; matter is the only real entity possible. At first there appear to be solid grounds for such a faith. When we witness cold iron by its arrest of the blacksmith's falling hammer raised to red heat, one force thus instantly vanishing, another as instantly taking its place, we naturally infer that the second is but a changed form of the first, and that, as the first is a motion of mass and the second a motion of molecules, the second is simply the first distributed. By a parity of reasoning, the same conclusions are reached in reference to the

other forces. As a waste of brain-tissue always accompanies processes of thoughts and decisions of will, the latter appear to be but chemical affinities or electrical forces in other forms, and all, in fact, but different motions of matter.

Other theorists, while they hold that forces are thus mutually convertible, contend that they are different forms under which one and the same spiritual entity makes its appearance. If this be true, we may perhaps infer the existence of a God, but it is at best the impersonal god of pantheism, for a permanent personality, or even any, cannot be affirmed of a whole the personalities of whose parts, by which alone it is known, are confessedly separate and perishable. That personal identity can be destroyed is possible, but to affirm that it is convertible involves an absolute contradiction of terms. Faraday, in his remarks on the "Conservation of Force,"* says, "There may be perfectly distinct and separate causes of what are called chemical actions, electrical actions, and gravitating actions constituting so many forces; but if the conservation of force is a good and true principle [and this he most emphatically declares], each of these forces must be subject to it; none can vary in its absolute amount, each must be definite at all times, whether for a particle or for all the particles in the universe, and the sum also of the three forces must be equally unchangeable. Or there may be but one cause for these three sets of actions, and in place of three forces we may really have but one, convertible in its manifesta-

* Youmans's Collection of Monographs on "The Correlation and Conservation of Forces," p. 379.

tions." In this same paper* he observes that "the commonly received idea of gravity appears to ignore entirely the principle of conservation of force, and by the terms of its definition, if taken in an absolute sense, 'varying inversely as the square of the distance,' to be in direct opposition to it."

This apparent creation and annihilation of force, however, he thinks science will some day account for, perhaps by the discovery of phenomena proving that the bodies whose attraction for each other so mysteriously comes and goes, experience exactly corresponding structural changes, and that thus conservation is maintained. But this strange conduct on the part of this, one of nature's most prevalent forces, has occasioned a growing distrust in the soundness of these theories, and a new one has accordingly been propounded which bids fair eventually to prevail. Professor Tyndall, perhaps its ablest advocate, has left us a very clear statement of it in an article on "The Constitution of Nature" in his "Fragments of Science." The theory, as I understand it, is briefly this. Of essential causes science has no knowledge, and concerning their nature and ways of working it can safely make no statement. They and their phenomena have, however, been sadly confounded, and the law of conservation has consequently been falsely affirmed of both. All matter is supposed to consist of elastic molecules. When the hammer strikes the bar of iron the molecules thus forced together rebound, and being again driven in again rebound, and when this vibratory motion reaches a cer-

* Youmans's Collection, p. 363.

tain violence our nerves of touch recognize it as heat, and, if suffered still further to increase, it finally affects our nerves of sight, the iron begins to glow. But there is here no exhibition of conservation of force proper, for the motions of mass and of molecules to which alone the law of conservation applies are energies, not essential causes, the motions of mass being the result of several forces, gravity among the number, the motions of molecules being the result of atomic repulsion. The attraction of gravity constantly increases while the hammer is approaching the bar, and reaches its maximum the instant the blow is struck. The increase is a direct creation, so far as science sees. On the other hand, as the bar's atoms are driven together by the blow, a repellent power appears among them which thenceforward constantly increases until it is able to hurl them back again. This increase cannot come from gravity, for this does not suffer from the collision the least diminution in either hammer or bar. At each oscillation of the atoms force is seemingly both created and destroyed, no one knows how.

Tyndall remarks,* "When two atoms of hydrogen unite with one of oxygen to form water, the atoms are first drawn toward each other, they move, they clash, and then, by virtue of their resiliency, they recoil and quiver. To this quivering motion we give the name of heat. We must not imagine the chemical attraction destroyed or converted into anything else, for the atoms when mutually clasped to form a molecule of water are held together by the very attraction which first drew

* Fragments of Science, p. 30.

them toward each other." He also says in the same essay,* "As regards convertibility into heat, gravity and chemical affinity stand on precisely the same footing. The attraction in the one case is as indestructible as in the other. What is meant in the case of chemical affinity is that the pull of that affinity, acting through a certain space, imparts a motion of translation of the one atom toward the other. The motion of translation is not heat, nor is the force that produces it heat, but when the atoms strike and recoil the motion of translation is converted into a motion of vibration, and this latter motion is heat." On the thirty-first page he makes the general statement, "Of the inner quality that enables matter to attract matter we know nothing, and the law of conservation makes no statement regarding that quality." Carefully distinguishing between the effect and the force of gravity, he shows how unconsumed tensions and *vis viva*, the work-producing power of a particle, constitute a constant quantity styled energy, and that to this combination, and to this alone, the law of conservation pertains. Gravity thus explained proves no exception to the rule.

I wish to call special attention to the ground here taken by Professor Tyndall, for his views are now generally conceded to be those of the most advanced science. He has made the subject a specialty, has published extensive treatises upon it, and his writings are quoted as standard authority throughout the scientific world.

According to him, forces are not simply mutually convertible modes of motion, neither are they different

* Fragments of Science, p. 16.

manifestations of some one force, but are distinct spiritual entities, and are each possessed of an indestructible identity. Of energies and not of forces can convertibility be affirmed. This gives us in inorganic nature fifty-seven or more individual elemental powers, and, however far science peers into the past, it can detect no diminution of that number. The homogeneity of matter and force, then, to which Herbert Spencer so confidently points as the primal state out of which has been evolved the heterogeneity of to-day, is all a chimera. In the inorganic world there has been no advance from the simple to the complex in the ingredients themselves, but only in their combinations. These particles, which chemists at present call hydrogen, oxygen, carbon, nitrogen, have never been anything else than what they now are; they have been the dwelling-places of precisely the same wonder-working spirits; not a single virtue has gone out of them, not a single virtue has entered in; a thousand million years proving as impotent as a single fleeting second to effect any change. If the evolutionists refuse to accept this theory of Tyn-dall, and persist in asserting the conservation of force rather than of energy, gravity confronts them insisting upon an explanation, and no system of philosophy can long withstand the seemingly direct opposition of a force acknowledged to be absolutely universal.

THE NEBULAR HYPOTHESIS.

The Nebular Hypothesis, as presented by its modern advocates, rests on a very insecure foundation. According to the *American Cyclopædia*, it supposes the

universe to have commenced as a homogeneous nebula and to have experienced the following changes: mutual gravitation of its atoms, atomic repulsion, evolution of heat by overcoming this repulsion, molecular combination, heat set free by this chemical action, radiation of heat, and consequent precipitation of binary atoms forming irregular flocculi; finally, a rotary motion induced by gravity acting on these irregular masses.

If, at the beginning, there was but one kind of matter and but the one force, gravity, the latter would have to change a part of itself into atomic repulsion before it could encounter it and thus generate heat. This might be considered a very marvellous feat for a physical force. But even suppose it possible, the particles as they approach each other, instead of losing any of their mutual attraction, have it, as we have seen, vastly increased. Whence, then, comes the atomic repulsion? Indeed, whence comes the increase of gravity? Here both the initial force is multiplied and another force absolutely created. On the other hand, if it is granted that neither of these forces preceded the other and that neither can be changed into the other, what hinders us from predicating the same of the rest of the elemental forces?

Not only do the advocates of this hypothesis encounter these perplexities at the outset, but the worlds into which the homogeneous fire-mist is finally rolled present difficulties equally formidable. If their theory is true, the farther a planet is from the sun, the larger, the lighter, and the swifter it should be. What are the facts? "Mars is smaller than the Earth, Uranus smaller than Saturn, Saturn smaller than Jupiter,

and Jupiter succeeds immediately to a host of planets which, on account of their smallness, are almost immeasurable. It is true the rate of rotation generally increases with the distance from the sun, but it is in the case of Mars slower than in that of the Earth, and slower in Saturn than in Jupiter.”* A few passages farther on, Humboldt remarks, “Taking water as the unity of density, Mercury is 6.71; Venus, 5.11; Earth, 5.44; Mars, 5.21; Jupiter, 1.32; Saturn, 0.76; Uranus, 0.97; Neptune, 1.25; the Sun, 1.37.”† The sun, instead of being denser than any of its satellites, is but one-sixteenth heavier than Neptune, the outer one, and nearly five times lighter than Mercury, the inner. The comets and the moons of Uranus move in orbits whose planes lie at angles that flatly contradict this theory, and, as more than seven millions of the former visit our solar system and are among the largest bodies known, no hypothesis which their facts oppose can long survive.

The spectroscope, in its examination of hundreds of *nebulæ*, has indeed found many of them to be, what their name purports, thin banks of nebulous matter, but without exception heterogeneous in their nature, while at the same time not sufficiently so to render them fit building-material for any such worlds as at present exist.

Against the assertion that the universe is without beginning in either space or time, Dr. Robert Patterson has ably argued that a continuous cloud of nebulous

* Humboldt's *Cosmos*, vol. iv. p. 425.

† *Ibid.*, vol. iv. p. 447.

light would be overspreading the firmament were that the fact. There would be but one unbroken Milky Way made up of the blended light of an infinitude of suns. It could not be properly claimed that it would be impossible for light from multitudes of them to have yet reached us because of their inconceivable distance, for since the rays started out on their journeyings there has been an equally inconceivable lapse of time. He also remarks that if the universe is without bounds it must be without a common centre. We at once see that in the supposed original homogeneous nebula there must have been as many centres as there were particles. Every particle must have attracted every other equally, and have thus hopelessly prevented that initial motion without which the evolution of the present irregular masses of heterogeneous matter whirling through space never could have occurred. But to grant that the universe has bounds is as fatal to atheism as to concede to it a beginning; for, as the same author observes, if a reason can be assigned why one portion of space is occupied and not another, that reason must show a cause, and that cause must not only have antedated the universe, but have been sufficient to produce it.

Sir David Brewster remarks,* "Mr. Otto Struve and Professor Bond, of Cambridge, Mass., have lately studied with the great Munich telescope, at the observatory of Pulkowa, the third ring of Saturn, which Mr. Lassell, of Liverpool, and Mr. Bond found to be fluid. They saw distinctly the dark interval between this fluid ring and the two old ones, and even measured its dimen-

* *More Worlds than One*, p. 27.

sions; and they perceived at its inner margin an edge feebly illuminated, which they thought might be the commencement of a fourth ring. These astronomers are of opinion that the fluid ring is not of very recent formation, and that it is not subject to rapid change; and they have come to the extraordinary conclusion that the inner border of the ring has since the time of Huygens been gradually approaching the body of Saturn, and that we may expect sooner or later to see the rings united with the body of the planet." If this be true, the fact, to say the least, is quite damaging to the Nebular Hypothesis.

Against this Hypothesis stands also the celebrated law of Carnot. Helmholtz, in his "Introaction of Natural Forces,"* thus states it: "Only when heat passes from a warmer to a colder body, and even then only partially, can it be converted into mechanical work." An equilibrium, therefore, is constantly being approached, the warmer bodies imparting their heat to the colder. Energy under new forms is constantly appearing, but only a part of this can be reconverted into heat, and only a part of the resultant heat can be turned again into energy. A state of rest is approaching, otherwise perpetual motion would be possible in nature,—an achievement of course utterly out of the reach of realization, for, to illustrate, if a weight by its fall could turn a wheel and the wheel raise a weight equal to the first one, then that weight would prove to be heavier than itself. Helmholtz† justly claims that in order to have the planetary system eternal the

* Youmans's Collection, p. 228.

† Ibid., p. 242.

worlds must, first, be solid, and, second, must whirl in perfect vacuum. The behavior of Encke's comet indicates that the latter is not true; and as to the former, our own earth is largely fluid; there are signs of water on Mars; indeed, the sun, Venus, Mars, Jupiter, and Saturn are held by astronomers to be enveloped by an atmosphere. "The motion of tides produces friction, all friction destroys *vis viva*, and the loss in this case can only affect the *vis viva* of the planetary system. We come thereby to the unavoidable conclusion that every tide, although with infinite slowness, still with certainty, diminishes the store of mechanical force in the system; and, as a consequence, the rotation of the planets around their axes must become more slow; they must therefore approach the sun, and their satellites must approach them." Speaking of the sun's heat, he remarks* that "the inexorable laws of mechanics indicate that its store of force which can only suffer loss and not gain must be finally exhausted."

The universe, consequently, must at last become a single mass of motionless matter unless new energy is introduced into it from without; and if it is true that it is approaching its end it must be equally true that it has had a beginning.

Dr. Bushnell, in an article on "Progress," forcibly argues that common sense itself has been outraged by the theory that the present system of progression extends back in an unbroken series infinitely. However slow the advancement, perfection must have been

* Youmans's Collection, p. 245.

reached numberless times, for eternity, though past, is no less an endless duration, and what finite ideal could still be unfulfilled if toward it an infinite number of approaches have already been made? Here and there a thinker apparently foreseeing this dilemma has, as he observes, taken refuge behind the assertion that nature by some law of its own runs in cycles, returning into itself by as many relapses as it makes advances. But this is no real progress, but is simply the monotonous vibrations of a pendulum. Humboldt in his "Cosmos" and Spencer in his "First Principles" advocate this view, but the vast majority of the philosophers of this school stoutly deny any retrogression. Emerson in his "Conduct of Life" says, "No statement of the universe can have any soundness which does not admit the ascending effort. The book of Nature is the book of Fate. She turns the gigantic pages leaf after leaf, never *re-turning* one."

Such are some of the seemingly fatal flaws in the foundations on which evolutionists are still busily building an imposing biological superstructure. To a brief examination of this edifice we now turn.

VITALITY.

Max Müller, in his lectures on "Darwin's Philosophy of Language,"* tells us that Professor Haeckel, the most distinguished and strenuous advocate of Darwinism in Germany, claims that in the present state of physiological knowledge the idea of a Life-Giver has

* Eclectic Magazine, September, 1873, from Fraser's.

become unscientific; that the admission of one primordial form is sufficient, and that that was a moner, consisting principally of carbon in the form of the white of an egg, of a chemical nature solely, and that this moner is the product of self-generation.

I have already quoted Tyndall as claiming that there would be no valid reason for denying that were the molecules that compose the human body gathered first-hand from nature and placed in the same relative positions and possessed of their present molecular forces and motions, they would stand before us a sentient, thinking being; that were our planet carved from the sun and set spinning around its axis and in its orbit as now, the consequence of its refrigeration would be the development of organic forms. "In an amorphous drop of water," he says, "lie latent all the marvels of crystalline force; and who will set limits to the possible play of molecules in a cooling planet?" This is substantially the ground taken by Spencer, Huxley, Bain, and others of the Evolution school. When these theorists assert that no impassable gulf separates the inorganic from the organic, that the forces of the one differ from those of the other only as one motion differs from another, that heat or electricity becomes not only thought, emotion, or action of will, which are simply the phenomena of the *ego*, but the very *ego* itself, by changing the motion of identically the same matter, we must hold them to accurate experimental demonstration, for the doctrine is a death-blow to everything noble in aspiration or hope.

It seems to me that Tyndall has unconsciously suggested a most powerful argument against the soundness

of his own conclusions. He has championed the theory that the forces in the inorganic world are entities, not mutually convertible, maintaining their individuality intact under all circumstances; that only energies are interchangeable. What hinders the same discrimination being made in the realm of vitality between energies and forces, the one being simply convertible motions, the other inconvertible entities, concerning whose nature science can safely make no statement? As far as I can see, precisely the same arguments apply.

Dr. Carpenter, President of the Royal Society of England and member of the French Academy, in his article on the "Correlation of Physical and Vital Forces,"* states that "the best physiologists of the present day separate into a distinct category vital phenomena, claiming them to differ *in kind* altogether from those of physics or chemistry." They are produced by what he styles germinal capacity, an inherent hereditary power within the germ, an agency whose office it is simply *to direct* in the use of light, heat, electricity, and the other elemental energies, and thus by their help build up matter into an organism answering to an ideal given it. The vital force is supposed not to supply a single particle of energy, but only to turn into its own individual channel a portion of what it finds outside. The Arabian romance of the slave-genii and the lamp here finds its realization. While the physical and chemical forces are subject to the vital, the resulting energies assume entirely new feat-

* Youmans's Collection, p. 402.

ures ; but so soon as the spell is broken they become as before. When molecules enter the organism they part with none of their molecular forces ; when they go out from it they leave none behind ; while in it those forces continue as operative as ever, being simply overpowered and directed for the time being by some separate superior force, for as soon as it is gone at death's coming they straightway set themselves at work to tear down what they have until then been forced to build up and maintain. These elemental genii are no willing servants to the lamp, but slaves rather, ready, when released, for riot and ruin.

Herbert Spencer not only affirms that all the multi-form varieties in inorganic nature have been evolved from strict homogeneity, but he most positively states that the same is true of the still greater diversities in the realms of life. In his work on "Progress,"* he says, "In its primary stage every germ consists of a substance that is uniform throughout both in texture and chemical composition." Whence, then, the succeeding heterogeneity? we may ask. It is surely not the result of any one physical or chemical force, for if science has proved anything it has proved that a simple, an element, as gold or oxygen, has no power to change itself or to undergo change by being mixed only with its like. Then some force separate and superior must be at work. But to grant this would be fatal to his philosophy, for the germinal substance cannot be homogeneous if two or more forces are lodged within it. Turning again to Tyndall's "Fragments of Science,"

* Page 2.

we find how entirely gratuitous is this statement of Spencer, although it is one of the foundation-stones in his system of thought: "When the contents of a cell are described as perfectly homogeneous, as absolutely structureless, because the microscope fails to distinguish any structure, then I think the microscope begins to play a mischievous part. . . . Have the diamond, the amethyst, and the countless other crystals formed in the laboratories of nature and of man no structure? Assuredly they have; but what can the microscope make of it? Nothing. It cannot be too distinctly borne in mind that between the microscope limit and the true molecular limit there is room for infinite permutations and combinations."*

Science thus far has also failed to bring to light any instance of spontaneous generation. Many very ingenious experiments have been made revealing new truths in biology, but not this. Huxley, in his "Origin of Species," says, "Nobody has yet built up inorganic matter into living, organized proteine, and I suppose it will be a long while before any one does. A distinguished foreign chemist contrived to fabricate urea, a substance of a very complex character, which forms one of the *waste* products of animal structures. Of late years a number of other compounds, such as butyric acid, has been added to the list. I need not tell you that chemistry is an enormous distance from the goal I indicate." In his article on "Biology" in the *Encyclopædia Britannica*, he affirms that "the chasm between the living and the non-living the present state

of knowledge cannot bridge ;” and in his “Introduction to the Classification of Animals” he asserts that life is the cause of organization, and not organization the cause of life. Yet this eminent scientist, notwithstanding these frank confessions, expresses the hope that this goal chemistry will some day attain.

All of what was supposed to be spontaneous generation has been found to come from minute spores, or eggs, floating in the atmosphere, which heat would kill, or which would lodge in cotton-wool if placed in the mouth of the flask containing the prepared liquid. The air is full of “germ-dust.” Huxley gives a very interesting history of the attempts of chemists in this direction, showing how, on close examination, in each were found fatal defects. A fluid preparation was shut from the outer air, as it was thought, by being inverted in a bed of mercury, and infusoria appeared ; but it was afterward discovered that the mercury was fairly saturated with spores. A bottle was filled with boiled milk, and the neck stopped with cotton-wool, with the same result. On further examination it was found that the alkali in the milk protected the spores from the effects of the heat. The milk was made ten degrees hotter, and no animalcules were developed. M. Pasteur finally filled, with an extremely decomposable substance, a vessel having a long S-shaped neck. This preparation he boiled, and left the bottle open. No life appeared, the eggs from the outside air being deposited, as afterward found, at the entrance of the bent neck. The tube was then broken off near the vessel, and in forty-eight hours life was evolved. These and other like tests Huxley regarded as settling the question that

at the time of his writing no instance of spontaneous generation had come to light. Dr. Bastian, who has indeed proved himself both earnest and able in this field of inquiry, has lately issued a second work, in which he claims that beyond all doubt he has produced life from chemical action solely ; but even his most careful experiments are found far from conclusivè. Grant that after he had so bottled some niduses he had to all appearance wholly excluded the outside air, and that then he had subjected them to temperatures reaching as high as 150° C., and that when the mixtures cooled they swarmed with life, yet this may serve but to prove that eggs when lodged in some mixtures will resist greater heat than in others, the absolute limit of such resistance being yet a matter undetermined.

Professor Tyndall by a very ingenious contrivance recently obtained air which, by the use of the electric beam, he proved to be free from motes. To this air he exposed infusions of every kind, animal and vegetable, after having boiled them for five minutes in a bath of brine or oil, and in not a single instance did any microscopic life appear. Portions of the same infusions, which were six hundred in number, when exposed to the common air, swarmed, every one, with myriad life, showing that the lowest and minutest forms of existence are no exception to the rule that life comes from the egg. It was supposed that the fact that inside unfertilized hen's-eggs infusoria had appeared, settled the matter, until some prying individual announced that he had discovered the spores of infusoria deposited in the hen's ovary. Microscopists have succeeded in tracing the entire life-cycles of monads, and have found them to begin

and end in the egg. These animalcules so closely approximate bacteria in form, structure, and size, though somewhat larger, that it may be safely inferred that they pass through analogous changes. The fact that their spores cannot be seen does not prove that they do not exist, for gum-mastic may be dissolved in alcohol and the solution so diluted with water that the particles of the gum, though crowding the entire field of vision, become absolutely invisible even to carefully-trained eyes looking through the most powerful instrument. Science on the questions of the origin, nature, and ultimate destiny of the physical and vital forces is thus gradually growing conscious of her limitations.

PANGENESIS.

The perplexing problems of biology have awakened the profoundest interest, not only in philosophers and scientists, but in almost the entire reading public. The solutions offered reveal more or less that same naturalistic bias already noted in modern thought; but, while none reach satisfactory conclusions, none are without valuable suggestions, out of which, if properly combined, we believe satisfactory conclusions may be reached. To their consideration we now invite attention.

Darwin is not strictly an evolutionist: Spencer is. The former's position is briefly this. Offspring inherit the traits of their parents, with slight individual differences. Those differences which help in the struggle for life are, through inheritance, gradually intensified and fixed; those which hinder disappear. This he

names natural selection. To account for another class of phenomena he directs attention to the wellnigh universal warfare of rival lovers, the victor securing the female and perpetuating in his progeny the traits which won him the battle. This he names sexual selection. On these two pillars rests his theory of the Origin of Species. To explain the origin of the individual he offers Pangenesis, a provisional hypothesis, which, for the convenience of my argument, I will consider first.

In this he claims that each living organism is composed of an inconceivable number of minute organic atoms which he calls gemmules. Each of these has the power to reproduce its kind. They come from every part not only of the present living organism, but even of ancestral ones back for several generations. Each has the power of circulating freely through the entire structure. One of every kind of this inconceivable multitude is found in every spermatozoon, that mysterious, microscopic animalcule which is supposed to be the embodiment of germ-life. In this way he attempts to account for the fact that in the lowest animals reproduction is produced by budding, claiming that, if every cell has the power to reproduce the whole organism of which it forms a part, it must contain elements derived from every part of that organism. He also thus attempts to account for the reappearance, in the child, of counterparts of the physical, intellectual, and emotional peculiarities of its parents. The reappearance of remote ancestral traits comes from the final developing of gemmules which have been lying dormant perhaps for generations. At first glance this seems a simple and sensible explanation of what are undoubted facts in

nature; but will it bear the test of close analysis? The subdivision of matter which it demands does not simply border on the infinite, but is so absolutely. For though he claims these gemmules to be ultimate organic atoms, they are not, for he also claims for them spontaneous subdivision and multiplication. If thus divisible, as are germ-cells, they must be made up of still more minute gemmules, and these being also divisible must still be composed of others, and so the division must go on without end, the existence of the original gemmules in their absolute infinitude thus becoming impossible to human thought. This is the inevitable dilemma into which Darwin falls, for he is forced to advocate gemmule-fission or he can lay no claim to having approached a hair's breadth toward the solution of the mystery of individual life. If a gemmule can ultimately be reached which cannot be divided,—that is to say, the true gemmule,—whence comes the reproduction by it of a second? It cannot come from the first, for it is, according to the supposition, absolutely indivisible, while if the first has power to breathe into a speck of amorphous matter an organizing spirit like its own yet no part of it, then every gemmule must possess this same creative energy, which is the sole prerogative of Divinity, each living thing and each infinitesimal particle that composes it thus becoming by turns creature and creator. Verily then Pan is God, and Pangenesis the genesis of God. The critics of Darwin have not, as I am aware, followed his hypothesis so far into the regions of the absurd, but I fail to see how, under the inexorable laws of logic, any different conclusion can be reached. By this theory, instead of accounting for the origin of the in-

dividual, Darwin really strikes a death-blow at individuality. His invisible and, as I have shown, his truly inconceivable gemmules must each embody a separate identity, if identity is at all affirmed. In such a case the organism of which they are ultimate organic atoms would be only an aggregation of individuals, an organized cosmos. But our consciousness affirms that in each organism there is but one pervading spirit, that this spirit is a unit, indivisible, dwelling in and at the same time apart from the body. Sever an arm, and still the personality, the *ego*, remains untouched. The surgeon's knife, directed with all the skill of surgical art, has no power to mar it. When Darwin advocates gemmule-fission, claiming that a gemmule can spontaneously divide, forming two perfect gemmules, each capable as the first to reproduce its kind, each precisely like the first, having as distinct a personality as that from which it came, he advocates a spontaneous division of the individuality. Now, if an *ego* can divide itself infinitely, and thus make out of itself an infinite number of *egos*, our intuitions concerning personality are wholly at sea, for once disturb the unity of the *ego*, take from it in the least, and its only distinguishing characteristic, its identity, is destroyed. Professor Delpino, who urges in part the above objection, remarks that should the reply be made that the separate existence of this *ego*, this vital principle, was at best problematical, he would answer that this comes with poor grace from an advocate of Pangenesis, for it involves at least four unproved hypotheses,—the existence of the gemmules, their propagative affinity, their germinative affinity, and their multiplication by fission.

This attempt of Darwin at the solution of life's mystery, like many others, leaves the problem as it found it. The mystery remains a mystery still. Each theorist professes to have traced to its last hiding-place these secret somethings. The atom, the physiological unit, the gemmule, these are the names given to the inner temples where these spirits dwell. The apartments thus assigned them are absolutely inconceivable in their minuteness, yet they afford ample room and an effectual hiding-place.

The theory of Pangenesis is offered as an explanation of the phenomena of inheritance. Even were it true, it gives no solution of the source of individual differences, dealing as it does solely with the question of the transmission of likeness. The former arise no one knows how, as Darwin frankly admits, and with this admission, as Argyll has pointed out, he unconsciously confesses that all he has yet done at the best by his three theories is to account for the perpetuation, and not the origin, of species; for, note, his natural and sexual selection is no more than a choosing between traits already mysteriously originated. Furthermore, how those favorable individual differences become intensified and finally fixed merely through these choices is still another most perplexing problem, of which Darwin ventures no solution, contenting himself with offering evidence in proof simply of its truth. But even against the soundness of this conclusion distinguished investigators in science, Mivart, Argyll, Wallace, Thompson, Müller, Lyell, Huxley, even Darwin himself, have brought to light many most interesting and convincing facts and have given us valuable aid

in their interpretation. We will glance at a few of them.

MIMICRIES IN NATURE.

There are in nature many remarkable instances of mimicry under whose shelter some animals take refuge from deadly enemies, others insidiously steal upon their prey.

Mr. Wallace remarks of the leaf-butterfly which he found in Borneo, "We come to a still more extraordinary part of the imitation, for we find among butterflies representations of leaves in every stage of decay, variously blotched and mildewed and pierced with holes, and in many cases irregularly covered with powdery black dots gathered into patches and spots, so closely resembling the various kinds of minute fungi that grow on dead leaves that it is impossible to avoid thinking at first sight that the butterflies have been attacked by real fungi." The imitation is said to extend through all the metamorphoses of the insect. The eggs resemble seeds, and the larvæ bits of stalk, or chips, or fragments of leaves. Argyll tells us that many species of the genus *Mantis* are wholly modelled in the forms of vegetable growths: "The eggs are made to imitate leaf-stalks, the body is elongated and notched so as to simulate a twig, the segment of the shoulders is spread out and flattened in the likeness of a seed-vessel, and the large wings are exact imitations of a mature leaf, with all its veins and skeleton complete, and all its color and apparent texture. It is a predaceous insect armed with most terrible weapons hid under the peaceful forms of the vegetable world.

It is its habit to sit on leaves which it so closely resembles, apparently motionless, but really advancing on its prey with a slow and insensible approach."

There are some conspicuously-colored varieties of butterfly which are exceedingly unpalatable and have about them an offensive odor. The more noticeable they are the less liable to be mistaken for those that are sweet and savory and the more likely to be shunned by the hungry bird. There are other varieties which by their imitation of the gaudy coloring of these and their style of flight pass themselves off for quite the opposite of what they are. In the English orange-tip the under surfaces of the wings resemble the bloom of the wild parsley on which it rests at night. Darwin notices* the mimicry of butterflies of both withered and green leaves in form, color, veining, and foot-stalk, but passes it by with the simple remark that the coloring has been modified for purposes of protection. According to his theory, the imitation came through inheritance by slow degrees. The first was a chance change and the imitation very faint, but its possessor, escaping its enemies by means of it, while its less fortunate comrades were devoured, transmitted the peculiarity to its offspring, and those to which had been given the strongest protective likeness survived, and thus along down the line the imitation grew until the present marvellous perfection was attained. But how happens it, we may ask, that many other kinds, such as our Admiral and Peacock varieties, our white cabbage butterflies, or the great swallow-tailed *Papilio*,

* Descent of Man, vol. i. p. 380.

all blazing with conspicuous colors, have not been favored with similar imitations?

There is a species of moth of which both sexes are white, and these are so distasteful that all feeders, to which most moths are a choice morsel, will not touch them. There is another, the *Cyenia*, whose females alone imitate the appearance of these for purposes of protection. As sexual selection is supposed by Darwin to be inoperative among moths, it must be the males are denied this protective garb by some power not accounted for in his philosophy. He remarks,* "If we assume that the females before they became brightly colored in imitation of some protected kind were exposed during each season for a longer period to danger than the males, or if we assume that they could not escape so swiftly from their enemies, we can understand how they alone might originally have acquired, through natural selection and sexually limited inheritance, their present protective colors." But what is there to hinder the males from thus varying in favor of protection through natural selection, and also through that of sexual should it chance to be operative, for it too would incline toward the bright appearance? Grant the males are swifter-winged, yet they are nevertheless in great danger and need shelter, and moreover the gayer their garb the greater their chances for success in seasons of courtship.

There are lizards living upon the bare plains of the La Plata which are of such mottled tints that when, at the approach of danger, they suddenly shut their

* *Descent of Man*, vol. i. p. 400.

eyes and flatten their bodies, it is wellnigh impossible to tell where they lie. The flounder on its upper surface is speckled like the sand-bars of the sea on which it spends its days. A pipe-fish, with its reddish, streaming filaments, is hardly distinguishable from the sea-weed to which it clings with its prehensile tail.

One of Darwin's main arguments in favor of the theory that out of brute life came the human under the laws of natural and sexual selection, is the fact that between the two there exist so many striking resemblances. Applying this to the species which possess this protective mimicry, we must not only hold that the palatable and the nauseous butterflies have a common ancestry, but that the same is true of butterflies and leaves, of pipe-fish and the red streaming weeds of the sea. This argument of his loses much of its weight when it is shown not to be susceptible of universal application, for if he takes the liberty to explain any of nature's resemblances in any other way he must accord to us the same liberty, he must grant it possible that those resemblances which exist between brutes and men may be susceptible of a widely-different interpretation, that the many points of likeness may be accounted for simply by the fact that they are the product of a single designing mind.

Darwin confesses ignorance as to how the imitation began, or how it, step by step, grew stronger. He in reality attempts to explain only its subsequent adoption, and even to accomplish this he is forced to summon to his aid the law of inheritance, which proves to be a greater mystery, if possible, than the one he is attempt-

ing to fathom, for in different places through his "Descent of Man" he speaks of the sexual ornaments of males being transmitted equally to both sexes, of their being transmitted only to the males; of the protective color and occasionally of the superior strength of females being in some instances confined to them, in others allowed to both, showing that here is a force the methods of whose working have thus far proved past finding out. Seemingly conscious of the unsatisfactory character of this mode of interpretation, he essays by his theory of Pangenesis to throw light upon the phenomena of inheritance, but, as we have seen, this very hypothesis is fatally at fault, and even were it true he has succeeded only in following the mystery until it vanishes at last within the diminutive walls of the gemmule.

CORRELATED GROWTH.

There are phenomena of correlated growth which pointedly controvert the positions of both Darwin and Spencer. There are serial, bilateral, and vertical correlations whereby symmetry, a correspondence of parts, is secured to the organism. But there is a profounder correlation than even this, connecting the organism with its environment. The first, as Argyll observes, suggests the working of forces possessing inherent polarity of action,—the other, adjustment with a view to purpose. The exquisite patterns of flowers and of shells, the nice balancings of parts, noticeable, in fact, in nearly all organisms, are illustrations of the first class. Darwin's and Spencer's explanation of the phenomena is that correspondence of parts comes from a

like correspondence in the external influences. As organisms are seldom out of harmony with their surroundings, it is difficult to cite facts controverting this position, however false it may be ; yet some have come to light which are clearly of another origin. For instance, in cats, eyes with a blue iris are found associated with deafness, and a tortoise-shell-colored fur with the female sex. There are malformations and abnormal developments under what are styled symmetrical diseases that reveal at times very grotesquely this intimate relationship. Darwin himself gives us instances of unusual growth that show correlation. He says, "In several distinct breeds of pigeons and fowls the legs and two outer toes are feathered, so that in the trumpeter pigeon they appear like little wings." These feathers are sometimes even longer than those of the wings, and resemble them in structure. In such cases tendencies appear for completing the resemblance by some of the toes growing together. A mechanical origin cannot well be claimed for the serial homology displayed in the development of the worm *Syllis*, dividing as it does spontaneously, a new head with all its complexity and unity forming midway in the body of the parent. The issuing of the legs, wings, and eyes of *Diptera*, two-winged flies, out of masses of formative tissue, and the building up of a body and head by their approximation, is a process not possibly referable to outside influences ; neither is the fact that the larva of the Hessian fly gives rise to a second within it which bursts the body of the first, the second to a third, the third to a fourth ; neither is the fact of the vertical completeness of the bony pike, for it can make no use of it ; nor, for

a similar reason, that of the extra series of ossicles on the outer side of the paddle of the ichthyosaurus; nor that of each hand of the eft having one more finger than his foot has toes..

If Spencer claims for his "physiological units" power to grow into as perfect animals as those from which they sprang, how can he consistently pronounce incredible the evolution of nature's homologies by some internal, individual force? Murphy, in his work on "Habit and Intelligence," remarks that in crystals form or structure does not depend on function, for they have none, and that analogous formative forces may reside in living organisms. This is especially evident among radiates and mollusks. The symmetry of their shells is no less wonderful in its perfection than that displayed in salt or snow crystals. In the same species of sea-worms, males and females differ so widely that naturalists for a long while mistook them for different genera and even families; yet Darwin admits that sexual selection is not sufficient to account for this wide variation, they being too low in the scale to choose partners or attempt rivalry. Natural selection surely cannot account for it, for they live amid similar surroundings and fight similar battles. There are species of insects in which the male is a fly and the female a worm. To have made it possible for this species to be an offshoot of some other, the changes effected by selections in one sex must have been intimately and most mysteriously correlated with those in the other. The simultaneousness and correlation of these changes are wholly unaccounted for in Darwin's philosophy. On this point Argyll cites the plumage of the humming-birds. Not

only do marked differences exist between the four hundred species, but between the sexes of each species, and unless the variations occurred at the same time and were homologous between the sexes the divergence would exhibit for a time the phenomena of mixture or terminate in reversion. Yet Gould, a most acute observer, declares that among the thousands of specimens he has examined he has never yet found a single case of mixture or hybridism.

There are phenomena of the second class of correlated growth, those in which a close connection is discoverable between the organism and its environment, which must especially perplex these philosophers to explain. Among these are the mimeries in nature which we have just been describing, such as is seen in the resemblance borne by the Mantis to the vegetable forms about it, under whose show of harmless quiet it carries on its work of blood, such as is seen in those masked butterflies who safely flaunt their borrowed brightness in the very face of their enemies, or in others still whose wings are so serrated, colored, veined, dotted, and pierced that they easily elude their pursuers by their close likeness to the withered, fungi-eaten autumn leaves attached to the branches on which they alight, or in the semblance of the mottled tints of lizards and flounders to the sands of desert and sea, or the red, streaming filaments of pipe-fish to those water-weeds to which, under some mysterious influence, they cling with their tails.

Note the case of the poison of snakes. Argyll states*

* *Reign of Law*, p. 36.

regarding it that "it is a secretion of definite chemical properties, which have reference not only, not even mainly, to the organism of the animal in which it is developed, but especially to the organism of another animal which it is intended to destroy. . . . How will the law of growth adjust the poison in one animal with such subtle knowledge of the organism of another that the deadly virus shall in a few minutes curdle the blood, benumb the nerves, and rush in upon the citadel of life?" The electric battery of the ray or torpedo is a case equally in point. In the second volume of Owen's "*Lectures on Comparative Anatomy*" it is described as composed of nine hundred and forty hexagonal columns resembling honey-comb, each of which is subdivided by one of a series of horizontal plates seemingly analogous to the plates of the voltaic pile. The whole is supplied with an enormous amount of nervous matter, four great branches of which are as large as the animal's spinal cord, and these spread out in a multitude of thread-like filaments around the prismatic columns, and finally pass into all the cells. Here is presented a threefold correlation, embracing the organism of the fish, the organism of the enemy, and the nature of the conducting medium.

In the fertilization of the orchids this class of correlation is especially noticeable. Its history is as full of the marvellous as an Arabian tale. We here find contrivances of unrivalled ingenuity, and by their complications and many nice adjustments displaying, one would think, beyond all possible cavil, an intelligent purpose. Two or three illustrations will answer the demands of the argument. Darwin relates of the Co-

ryanthes* that it has its lower lip enlarged into a bucket, above which stand two water-secreting horns. These latter replenish the bucket, from which, when half filled, the water overflows by a spout on one side. Bees visiting the flower fall into the bucket and crawl out at the spout. By the peculiar arrangement of the parts of the flower the first bee that falls in carries away the pollen mass glued to his back, and then when he has his next involuntary bath in another flower, as he crawls out the pollen mass attached to him comes in contact with the stigma of that second flower and fertilizes it. In another variety he tells us that when the bee gnaws a certain part of the flower he inevitably touches a long delicate projection which he calls the antenna. This transmits a vibration to a certain membrane, which is instantly ruptured, setting free a spring by which the pollen mass is shot forth like an arrow in the right direction and adheres by its viscid extremity to the back of the bee. With this strange cargo under sealed orders, he wings his way to another flower, and thus, while busy gathering nectar for his comb, he is made an unconscious instrument in fulfilling conditions under which a new vegetable life comes forth, instructed in that same wonder-working alchemy that changes into a new orchid nectar-cup the soil, shower, and sunlight which nature has furnished for its fashioning.

Darwin, in his volume on this subject, uses this remarkable language: "The Labellum is developed into a long nectary in order to attract Lepidoptera, and we

* *Origin of Species*, 5th edition, p. 236.

shall presently give reasons for suspecting that the nectar is purposely so lodged that it can be sucked only slowly in order to give time for the curious chemical quality of the viscid matter setting hard and dry." Of one particular structure he says, "The contrivance of the guiding ridges may be compared to the little instrument sometimes used for guiding a thread into the eye of a needle." In speaking of the clue which led him to the discovery of the right working of the mechanism in one instance, he says, "The strange position of the Labellum perched on the summit of the column ought to have shown me that here was the place for experiment. I ought to have scorned the notion that the Labellum was thus placed for no good purpose. I neglected this plain guide, and for a long time completely failed to understand the flower." The valuable work from which these sentences have been taken was written by Darwin not as a theorist but as an acute and painstaking observer. We ask for no better witness than Darwin himself against his and Spencer's explanation of the phenomena of correlated growth. Evidences of an intelligent purpose, of the workings of self-conscious mind, are too overpowering to be ignored.

In the interior of the ear there is an immense number of minute, rod-like bodies, termed Fibres of Corti, having the appearance of a key-board. Each fibre is connected with a filament of the auditory nerve. These shreds of the nerves are strings, and the fibres the keys that strike them. This is supposed to be a key-board in function as well as appearance, and through it not only melody but even harmony of sounds finds an avenue to the brain. Here, as Mivart suggests, is an

anticipatory contrivance, for our progenitors had no wants in their simple modes of life which could possibly call into play an instrument of such unlimited resources of symphony, an instrument that has proved itself capable of interpreting to privileged multitudes the pathos and the rapture of a Beethoven and a Mendelssohn.

In the human eye there have been discovered by anatomists upwards of eight hundred distinct contrivances. Seven matched socket-bones, a self-adjusting curtain with its delicate fringe of hair, a projecting eyebrow, six outer muscles of the ball, one of them geared through a pulley, oil- and tear-glands with an accompanying waste-pipe, a hard, transparent, elastic cornea set in the white sclerotica, an expanding and contracting pupil, an aqueous, a crystalline, and a vitreous humor, an inward net-work of nerve,—such are some of the more noticeable points of an instrument which, in the ingenuity of its adjustments, eclipses any invention of any human genius of any era. Note but one of its contrivances. By this its possessor can both thread a needle and sight a star. The sclerotic and choroid coats are filled with minute muscles which can flatten and press back toward the retina the crystalline humor, and by the same movement change also the form and refracting power of the vitreous humor in which the lens lies. A reverse process can be effected with equal ease. Thus the ends that are clumsily, painfully, imperfectly attained by the apparatus of the astronomer and the microscopist are here secured without spherical aberration, instantly and by simple volition.

It would seem impossible to account for the develop-

ment of such a complicated instrument by means of a natural selection from among minute, indefinite, fortuitous variations, that selection being guided simply by the urgent demands of a struggle for life, for the instrument in order to be of any advantage in this struggle must have a concurrence of parts predicated a multitude of initial concurrent departures from the parental type. Only on this concurrence comes the gift of sight, and the very fact that such an end has been attained by such complicated means at the very outset before any selection can possibly take place, furnishes, it would seem, a complete answer to the Darwinian theory. Even the simplest eyes, those that are fixed and angular and of least focal power, furnish us this argument in its full force, for not one of them is so simple but that even it is the resultant of simultaneous and corresponding growths of different parts, each of an independent origin and development, and each utterly useless until conjoined with the others in a symmetrical whole. Also at each advance step in compass and complexity the same difficulties confront Darwin, for each is made up of an entirely separate set of concurrent changes. It is a very significant fact that the trilobites, one of the oldest of fossil forms, to all appearance coming suddenly upon the scene, without as yet any discovered ancestry, possessed fully-developed organs of sight.

'The human frame has diverged from that of brutes in the direction of greater physical helplessness, being left naked, without great teeth or claws, comparatively weak, and possessed of little speed and of slight powers of smell with which to find food or safety.

At the time these changes occurred in the body cor-

responding ones must have reached the brain, for the one change without the other, as Darwin confesses, would have been a serious hindrance in the struggle for life, and, if his theory be true, could not have long survived. As in the formation of the eye and ear, modifications occurring at different starting-points, and each developing along an independent line, must have united in a concert of action before they could be of any advantage, so independent, synchronous, and corresponding changes must have taken place in both the body and brain of the brute to have produced the man, even waiving the question of his being distinctively endowed with a moral accountable nature. Selection from minute indefinite variations, such as Darwin supposes, could have here played no part. Would creation be a misnomer for such a circle of change? Brutes, though thus men's progenitors, could have sustained to them no closer relation than the soil to the flowers which open out from it their tinted and perfumed petals.

In examining the phenomena of homologous growth the question very naturally suggests itself, Is utility always the end aimed at, or is the securing of mere beauty or variety in any single instance a controlling purpose? If the latter is true, then the hypothesis of the survival of the fittest is fatally at fault, as its author has felt himself forced to confess.

Darwin, strange as it may seem, is the very first to enter the list against his own theory, openly acknowledging that in the colors and forms of flowers the forces of correlated growth "do modify important structures independent of utility, and therefore of natural selection." But we need not enter the vegetable kingdom

to find overwhelming testimony against the soundness of his philosophy.

There is a class of microscopic animals, the Diatomaceæ, which have existed in such vast numbers that entire mountains have been found composed of their remains. The forms of their infinitesimal shells, when magnified, are discovered to be of most exquisite beauty and of every conceivable pattern. "In the same drop of moisture," writes Argyll, "there may be some dozen or twenty forms, each with its own distinctive pattern, all as constant as they are distinctive, yet all having apparently the same habits and without any perceptible difference of function." Neither sexual nor natural selection has any governing influence here. Mere ornament and variety is the evident purpose.

"The most probable view in regard to the splendid tints of many of the lowest animals seems to be that their colors are the direct result either of the chemical nature or of the minute structure of their tissues independently of any benefit thus derived."* Darwin attributes the beauty of the maiden's cheek to the color of the arterial blood; the extreme beauty of some of the naked sea-slugs, to the biliary glands seen through the translucent integuments. But are not the tints of autumn and of sunset and of flower-petal susceptible of like explanation? There is no sexual selection and consequently no secondary sexual characteristics among mollusks, yet they are beautifully colored and shaped. Darwin admits these colors to have no use as a protection, and accounts for them by the nature of the tissues,

* Descent of Man, vol. i. p. 314.

while the sculpture of the shells he attributes to their manner of growth. Suppose he were asked to explain the origin of London Bridge: would he answer, think you, that it is the result of certain mechanical and chemical forces working under fixed laws? Yet nothing is more settled in science than that these very forces performed the entire work. All the will of man has done is to direct them in their working.

Note the case of the tropical butterflies. Mr. Bates, quoted by Darwin as high authority, has proved that their gorgeous colors are not due to the greater heat and moisture to which they are exposed; that, though both sexes in many cases are subject to the same conditions and live on the same food, they so widely differ, the male being gayly dressed while the female goes about in plain Quaker costume, that naturalists for a long while ranked them as of different genera; and that in other cases both sexes are alike in external appearance, both presenting very broad and brilliantly tinted wings. Darwin affirms his belief that the same causes have probably affected the color in all as the same type is preserved. As, evidently, in many, neither sexual selection, nor environment, nor habits of life, nor purposes of protection are concerned, to what cause can this display of marvellous beauty be attributed? What hinders a belief that the same Divine Artist who painted the sunset, the rainbow, the flowers, and the autumnal glory, garnished also "these winged blossoms of the woods"?

Darwin informs us* that "the ocelli on the feathers

* Descent of Man, vol. ii. pp. 87, 88.

of the Argus-pheasant are so beautifully shaded they stand out like a ball lying loosely within a socket. These feathers have been shown to several artists, and all have expressed their admiration at the perfect shading. It may well be asked, Could these ornaments have been formed by means of sexual selection?" This question the author answers in the affirmative. But how happens it that choices made by birds in seasons of courtship out of indefinite variations of adornment result in a work of such high art? Have these choices, granting them to have been made, been guided by a capricious taste, or are they but one, and that too a subordinate one, of many agencies organized and controlled by a self-conscious will for the embodiment in color and form of some definitely preconceived ideal? Darwin attempts to show that minute steps have been taken in forming the ocellus, that there has been a gradual approach toward the resemblance to the ball and socket. But in the case of the mouth of the whale and the throat of the kangaroo, as we shall see, the entire departure from the ordinary construction must have been effected at once. Why may not the ocellus have as suddenly appeared in all its completeness?

"No one, I presume, will attribute the shading, which has excited the admiration of many experienced artists, to chance, to a fortuitous concourse of atoms of coloring-matter. That these ornaments should have been formed through the selection of many successive variations, not one of which was originally intended to produce the ball-and-socket effect, seems as incredible as that one of Raphael's Madonnas should have been formed by the selection of chance daubs of paint made

by a long succession of young artists, not one of whom intended at first to draw the human figure.”* Here is a clear admission that a certain species of bird comes upon the stage charged with a distinct mission, the work of producing on a feather-canvas a picture whose shading shall be of such faultless finish that the foremost painters of the age shall bear testimony that it is indeed the work of a master. I fail to see why it would not be reasonable to claim, even if it be granted that this resemblance in its perfectness is but the result of a long series of change, that at the very instant the tide of taste turned in the mind of the Argus-pheasant, the very instant the new pattern was set, the new impetus given, a new creation occurred. Suppose that at some time the directing, germinal power of an acorn becomes so affected that, instead of growing up into a genuine old-fashioned oak, one or two of the characteristics of an elm make their appearance, and that in the next generation one or two more are added, and thus little by little the change goes on until all the characteristics of the one have been supplanted by those of the other. Although centuries are consumed in perfectly embodying the new ideal, yet are we not warranted in saying that the moment the new germinal impulse is given that moment a new creative fiat goes forth? The laws of sexual and natural selection, of inheritance, of homologous growth, as well as all other laws of life whose nature is yet unknown, are, as we have remarked, but methods of working. The birds and beasts are unconscious instruments, they are blind to the final consum-

* Descent of Man, vol. ii. p. 135.

mation. The directive force that finally produces the ball-and-socket ocellus is no less mysterious than that force which is wrapped up within the walls of an acorn or within the faces of a crystal. The fact that the botanist can point out each step in the process of development whereby the oak is fashioned out of dew, air, soil, and sunlight, that he can talk learnedly of the osmotic force, does not prove that he has solved the riddle of growth, nor does his showing that centuries are necessary to bring the tree to perfection lift a single inch the hiding curtain.

NATURAL AND SEXUAL SELECTIONS.

There appear strong barriers opposing change in animal organisms in certain directions, and equally strong tendencies toward change in others. The experience of fanciers has proved this. Darwin himself has pointed out extreme variability in dogs, horses, fowls, and pigeons, and the singularly inflexible organization of the goose, the peacock, and the guinea-hen. He calls our attention to the fact of "a whole organization seeming to have become plastic and tending to depart from the parental type." Professor Huxley, in his "Lay Sermons," remarks, "We greatly suspect that nature does make considerable jumps in the way of variation now and then, and that these saltations give rise to some of the gaps which appear to exist in the series of known forms." Professor Owen, in his "Anatomy of Vertebrates," speaking of the origin of species, says, "Natural history teaches that the change would be sudden and considerable; it opposes the idea

that species are transmitted by minute and slow degrees. An innate tendency to deviate from the parental type operating through periods of adequate duration is the way of operation of the secondary law whereby species have been derived one from another." This is essentially Mivart's theory, in contradistinction to that of Darwin's selection and transmission of minute, indefinite, fortuitous variations until they become intensified and fixed. Darwin, after mentioning the characteristics acquired through natural and sexual selection, uses this remarkable language :* "An unexplained residuum of change, perhaps a large one, must be left to the assumed uniform action of those unknown agencies which occasionally induce strongly-marked and abrupt deviations of structure in our domestic productions." Both Darwin and Huxley thus open the door by their confessions for the theory of Owen, Mivart, and Argyll. They indeed open it for all that by natural interpretation is meant in the Mosaic record, for if there are "considerable jumps," as one expresses it, or, as the other, "strongly-marked and abrupt variations," what need for any of Darwin's supposed ape-like progenitors, intermediate links? and if for these marked changes they have, as they are forced to allow, absolutely no explanation, what valid objection can they urge to ours? Huxley confesses that although there is seemingly a greater difference in structural character between some of the varieties of pigeons, as the pouter and the tumbler, than between what naturalists call distinct species, as the ring-pigeon and stock-dove, yet the varieties

* Descent of Man, vol. i. p. 148.

among all animals may be crossed indefinitely, and the mongrels will continue fertile *inter se*, while the hybrid offspring of crossed species are in ninety-nine cases out of a hundred sterile *inter se*. Does not this confession, made by one of the most learned of scientists, one favorably inclined to Darwin's interpretations of nature, warrant us in the belief that true species cannot be developed through the adoption and transmission of individual peculiarities? Ought not this limitation to constitute one of the definitions of species? Have not naturalists occasionally mistaken varieties for species, and will not this test serve as a corrective? Huxley remarks,* "To sum up, the evidence, so far as we have gone, is against the argument as to any limit to divergencies so far as structure is concerned, and in favor of a physiological limitation. By selective breeding we can produce structural divergencies as great as those of species, but we cannot produce equal physiological divergencies." It matters not one whit, as he says, whether this sterility is universal or whether it exists only in a single case. No hypothesis can stand which is inconsistent with one of the facts for which it professes to account.

Darwin has put on record this frank confession:† "Not until I read an able article in the *North British Review*, which has been of more use to me than any other criticism, did I see how great the chances were against the preservation of variations, whether slightly or strongly pronounced, occurring only in single indi-

* Origin of Species, p. 111.

† Descent of Man, vol. ii. p. 120.

viduals." The article here referred to appeared in June, 1867. The writer of it urges that there must be a simultaneous modification of many individuals to render that modification permanent, or the bare weight of numbers would carry the day. He forcibly illustrates his argument by supposing a white man to go upon an island whose whole population is black and to marry with the natives. It will be readily seen that even under the most favorable circumstances, instead of the race finally bleaching out, the few drops of white blood would soon be lost sight of forever in the great ocean of black. Mivart remarks that Darwin's admission of the justness and soundness of this argument "seems almost to amount to a change of front in the face of the enemy." If the modification is simultaneous in many individuals, creation would be no misnomer, and Darwin, as we have seen, candidly admits that a whole organization has been known to become plastic, to tend to depart from the parental type.

Sir William Thompson calculates, as Mivart informs us, that, judging from the influence of the tides, the condition of the sun, and the present amount of the earth's internal heat, life could not have commenced farther in the past than a thousand million years. He calculates that at least twenty times that period was necessary to produce the present life-development by the Darwinian method. If we go back to the upper Silurian strata, we have already nearly reached the life-limit, if Thompson's figures are correct; yet at this ancient epoch we find the forms of the animal subkingdoms highly developed, while prior to this the fossiliferous deposits are strangely meagre. These facts

furnish strong presumptive proof of life's sudden introduction, as opposed to its protracted evolution through minute, fortuitous, indefinite variations. Impressed by these facts, Darwin acknowledges, "The case at present must remain inexplicable, and may be truly urged as a valid argument against my views."

The doctrine of sexual selection is, it would seem, in altogether too flexible a state to be of any very great scientific value. As we have already had occasion to remark, Darwin, under the stress of different emergencies, has spoken of male characteristics being transferred equally to both sexes, also of their being transferred only to the males, of the protective colors of females being in some instances an exclusive privilege of that sex, in others being shared by both. The phenomena of sexually limited inheritance are the effects of forces whose nature and methods of working Darwin has evidently failed to fathom. He struggles manfully, but without avail, to free his theories from these entangling webs. I alluded to some of the troublesome facts when treating of mimicry. I will call attention to others, many of them of his own suggestion.

The males of some species of fish have the duty assigned them of hatching the eggs, and during this season are exposed to great danger, yet they are far more brilliantly colored than their mates. It would seem that a protective garb should be given them, as the fate of each involves the fate of thousands of their progeny. With some genera the males have marsupial sacks in which the eggs laid by the females are hatched. But the genus *Solenostoma* offers a very curious excep-

tional case. The female has these sacks and hatches her own eggs, yet, strange to say, is more vividly colored and spotted than the male, and thus more exposed. This double inversion is truly very remarkable, and has not yet proved susceptible of a naturalistic explanation. The brilliance cannot be for protection, as Darwin admits, for with the multitude of fishes the males are the brighter, although to the race the females are equally important, and so he, twisting his theory of sexual selection to suit the case, suggests that, contrary to the usual custom, the males here become the choosers of partners in seasons of courtship. He takes the same tack in explaining the exceptional appearance of some species of birds. When the females are equally brilliant with the males, he claims that the latter first differed and then transmitted their newly-acquired ornaments equally to both; when less, that the males transmitted them exclusively to their own sex; when more, that the males, after having transmitted them to the females, have themselves lost the distinctive features. It is strange that the male fish, which are ardent in their courtship, often closing with their rivals in death-struggle, should be smaller than the female. Sexual selection should work uniformly among land and water animals. It is also strange that while the males are more beautiful than the females, some of them taking on their ornaments during the spawning season, the females should among their lovers exercise no preference. There are cases, as in some beetles, in which the males are larger and stronger than the females, yet are not known to fight together in rival courtship. Darwin admits that this fact puzzles him.

The survival of the fittest of the minute, indefinite variations of individuals is wholly inadequate to account for the mouth of the whale or the throat of the kangaroo. The former, we are told by Mivart, is lined with two series of horny plates lying close together. Their inner edges are furnished with coarse, hair-like processes of the same material, apparently the frayed ends of the plates, constituting a sieve, through which the whale strains from the ocean-water, as it passes out at his blow-pipes, the minute creatures that form its food. This most extraordinary contrivance is utterly useless to its possessor until it has reached perfection. As it could offer no assistance in the struggle for life until then, some other instrumentality than that supposed by Darwin must have carried it on through its incipient stages of development, if there were any, down that long line of whale-ancestry steadily toward the goal of its availability. Furthermore, the whale's whole mode of existence must have undergone radical change at the time it began effectively to use this strainer, for before this its food and its devices for obtaining it must have been radically different.

The larynx of the kangaroo reaches up to the posterior end of the nasal passages. In the vast majority of the mammals it stops at the floor of the mouth and is shielded by the epiglottis in times of swallowing. The young of this species comes into the world too imperfect to suck and swallow, and so its mother is enabled by nature to place it upon the nipple, and by a special muscular movement of the mammary gland to throw the milk into its mouth. The peculiar lengthening of the windpipe prevents strangulation, the milk

passing on each side of it into the gullet. If this was the original form, why the change? for it could not possibly work any harm to any one. If, on the other hand, this is a departure from the original, and by slow degrees, the first young had no other alternative than choking or starvation. The race must at once have become extinct, or, in other words, the change never could have occurred. Mivart tells us that the gavials and the crocodiles also have this peculiarity. While for the one it is of no apparent use, the other turn it to advantage in drowning their prey while holding them under water with their teeth.

What explanation has Darwin for the fact that one of the eyes of the flatfish gradually shifts its position from one side of the head to the other? Here is something more than the selection and transmission of some favorable individual peculiarity. Here is actual motion predicated the presence of force. It cannot be asserted that the fish is thus better fitted to battle for life, for other species thrive without this change. They swim and fight and feed as well. Neither can it be claimed as a sexual ornament. How, then, at the first chanced the eye to project a journey so unique, and by what marvellous means has it reached at last its destination?

Darwin, speaking on the subject of rudiments, remarks,* "But the latter stages of reduction, after disuse has done all that can fairly be attributed to it, and when the saving to be effected by the economy of growth would be very small, are difficult to under-

* *Descent of Man*, vol. i. p. 18.

stand. The final and complete suppression of a part already useless and much reduced in size, in which case neither compensation nor economy can come into play, is perhaps intelligible by the aid of the hypothesis of pangenesis, and apparently in no other way." If the arguments we have stated against this hypothesis are sound, these very phenomena of rudimentary organs, to which Darwin generally points so confidently in support of his theory, and which are indeed the most favorable of any, present insuperable objections to it; for if by his own confession he can account for them in no other way than by this theory, which is really untenable, then there is no resource left him. Besides, I am unable to see how pangenesis is at all pertinent, as it bears only on the transmission of likeness, the perpetuation of a trait, not its gradual disappearance. Darwin claims* that from the fact of the existence of rudimentary organs "we ought frankly to admit the community of descent of men and brutes: to take any other view is to admit that our own structure and that of all the animals around us is a mere snare laid to entrap our judgment." Following out the theory of Owen, Mivart, and Argyll, I would reply that, as creation comes through birth under law, man would retain many rudimentary brute characteristics, while at the same time he would enter upon the possession of others distinctively human. Darwin argues that inasmuch as we in our embryonic life resemble at different times different animals, we must count such-like animals among our ancestors. Agassiz has answered that sub-

* Descent of Man, vol. i. p. 31.

stantially in this way. If two germs though seemingly alike grow under all circumstances, the one into an ape and never above, the other into a man and never below, then the two germs, though indistinguishable at first, and though following for a time the same line of embryonic development, are radically different from the beginning, whatever that beginning may have been. He regarded the evolution revealed in nature as one of ideas, each typical form appearing through the creative fiat of one mind.

Hugh Miller maintained* that the influence of physical surroundings utterly fails to account for the phenomena of reduction and degradation. He has informed us that it was not until after the full development of the reptile dynasty that there were introduced into the ichthyic division all those irregular and degraded forms such as sun- and frog-fishes, and that the footless serpent did not come until mammals had entered upon the scene. Professor Dana states† that the earliest representatives of a zoological group are generally a little above the lowest of the series, evolution reaching downward as well as up. He also remarks,‡ “In the case of man, the abruptness of transition from preceding forms is more extraordinary than all others, and especially because it occurs so near the present time. In the highest man-ape, the nearest allied of living species, the capacity of the cranium is but thirty-four inches, while the skeleton throughout is not fitted for an erect position, and the forelimbs are essential to locomotion; but in

* *Footprints of the Creator*, p. 321.

† *Manual of Geology*, p. 396.

‡ *Ibid.*, p. 603.

the lowest of existing men, the capacity of the cranium is sixty-eight inches ; every bone is made and adjusted for the erect position ; and the forelimbs, instead of being required in locomotion, are wholly taken from the ground and have other and higher issues."

Professor Winchell, in his "Doctrine of Evolution," offers some seemingly insuperable objections to all naturalistic theories. The lengthening of the forelegs of the giraffe is a correlated growth not referable to any known physical force. The weight of the animal would tend to shorten them. "It will not suffice to call it a physiological force, if by this is meant some force resolvable into endosmose, capillarity, affinity, as maintained by Draper, Barker, Spencer, and others, for these forces are physical, and, like mechanical, act along lines of least resistance. Then it must be some force super-physical."* He shows that animals with similar wants and surroundings have been dissimilarly developed, while others, such as the whale and ox, both air-breathing, have under diversified conditions an identity of conformation. Land animals could not have been evolved out of fish by any protracted process, for unless the gills were at once changed into lungs life could not have been preserved. So, too, the transition from birds and reptiles to mammals must have been instantaneous. The chasm between the vertebrates and the invertebrates is not bridged, as some have claimed, by the young ascidian's row of cells resembling the dorsal cord, for these cells are on the ventral not dorsal side, and when the animal advances in

* Winchell's "Doctrine of Evolution," p. 71.

age the cells disappear instead of becoming more pronounced.

Darwin frankly says,* "Our ignorance of the laws of variation is profound." In qualifying his assertion that the changes are due to chance, he states that he means "only to acknowledge plainly our ignorance of the cause of each particular variation." Thus by his own showing he has not discovered the origin of species, although his work bears that title. His theories of Natural and Sexual Selection and of Pangenesis can relate only to the perpetuity and intensifying of forms born into the world he knows not how.

When he remarks,† "I believe in no law of necessary development," he places himself without the pale of the Evolution school. The unfoldings of life in the world are not to him the progressive work of forces under law. His belief on this point seems to be this. The variations from which natural and sexual selections are made are so indefinite that it is impossible to discover in them either order or design, and those only are chosen which help most in a struggle for life under a seemingly chance set of circumstances. There is, according to his theory, a continual progress through the ages toward the most fit, simply because in every instance the most fit are chosen and survive, but there is no universal scheme of development carried out by a company of correlated agencies constituted and controlled by a will that is at once self-conscious and creative. Once in a while, when some such fact as the ocellus of the Argus-pheasant confronts him, he is betrayed into re-

* *Origin of Species*, p. 131.

† *Ibid.*, p. 351.

flections not readily reconciled with this the main drift of his thought.

CREATIVE FORCES.

I have now passed in review a few of the facts in the light of which many of our foremost thinkers have felt forced to regard the theories of Darwin and the Evolutionists as lacking in the essentials of sound science. To the creed of Mivart, Argyll, and Owen I now direct attention.

Mivart believes, using his own words, "in the efficient presence of an unknown, internal natural law or laws, conditioning the evolution of new specific forms from preceding ones modified by the action of surrounding conditions by natural selection and by other controlling influences."

Argyll says,* "If I am asked whether I believe that every separate species has been a separate creation, not born but separately made, I must answer that I do not. I think the facts do suggest to the mind the idea of the working of some creative law almost as certainly as they convince us we know nothing of its nature or of the conditions under which it does its glorious work."

Owen, in his "Anatomy of Vertebrates," uses this language, to which we have already directed attention: "Natural history teaches that the change would be sudden and considerable; it opposes the idea that species are transmitted by minute and slow degrees. An innate tendency to deviate from the parental type oper-

* *Reign of Law*, p. 249.

ating through periods of adequate duration is the way of operation of the secondary law whereby species have been derived one from another."

These eminent authors, it appears, hold that new species are developed out of old ones with as much regularity and as little direct interposition of Divine will as oaks from acorns; that in all organisms there are tendencies to depart from the parental type; that those tendencies are innate and ready to manifest themselves whenever certain conditions are fulfilled; that those conditions are determined by immutable laws, and that those laws were established at the first in-breathings of organic life. Darwin is criticised, not because he believes in the existence of such conditional forces, but because he claims to have discovered them; these authors contending that natural and sexual selections, though instrumentalities, are not the only, nor the chief, nor even the prominent ones appointed for this work; that the changes, instead of commencing in minute, indefinite, individual variations, and advancing at a very slow and steady pace to meet the emergencies of an endless battle for life or love, reach their goal at a single bound under the influence of forces whose nature and methods of working are yet enveloped in the profoundest mystery.

While they have shown upon what insecure foundations rest the hypotheses of Darwin, they have at the same time failed to establish thoroughly their own. They are forced to make two concessions that render possible an interpretation of the phenomena of nature which, while answering as fully the claims of science, is more in consonance with the natural and commonly

received interpretation of the Scripture record, and satisfies in larger measure the cravings of the hungry human heart. The concessions are these: first, that they know nothing either of the nature of these supposed creative forces or of their methods of working; second, that, to use Mivart's own words,* "the soul of every individual man is absolutely created in the strict and primary sense of the word, that it is produced by a direct and supernatural act, and that by such an act the soul of the first man was similarly created." What valid objection can they urge to the suggestion that those so-called creative forces are set free by distinct volitions of some self-conscious intelligence, inasmuch as they confessedly know nothing about them, and especially as they concede that there are phenomena, the introduction of human souls, which can thus, and only thus, be explained? Grant, if you please, that there are, indeed, forces properly denominated creative, that they are subject to unchangeable laws, that new species are born out of old ones, that out of brute life has sprung the human, yet, as we are conscious that our own wills are essential causes, sources of unfailing force, lying outside of the chain of natural cause and effect, and are capable with a finite knowledge of stepping in and by skilled appliances directing the elemental forces to the accomplishment of their own sovereign purposes, we can readily conceive that the Divine will, guided by an infinite knowledge, can, by complying with the conditions that unfetter these forces creative, turn the currents of organic life into whatever channel it chooses.

* *Genesis of Species*, p. 295.

The transformations wrought by the human will upon the earth are marvellous. Yet no natural force has been destroyed, no law abrogated. The relation of the Divine will to the universe need be no less intimate, but rather may be inconceivably more so. If the will of Jacob could, by conforming to certain laws, cause the cattle of Laban to foal speckled calves, if the will of the pigeon-fancier of to-day can develop the tumbler and pouter out of native breeds, may not the will of God by precisely analogous methods make these very creative forces its ready servitors? The fact that such forces exist, instead of precluding the idea of the interposition of will, strongly suggests it. Our own experiences ought to teach us this, utilizing as we have so many of the mechanical and vital forces. Huxley thinks that all the differences between men and brutes are traceable to the effects of the gift of speech, and that it might come from the very slightest change in the structure of the nerves that control the muscles attached to the vocal cords. Let these muscles vary never so slightly from their present exact parallel action, and we should be struck dumb and soon sink into brute life. While controverting the conclusion to which he endeavors to lead us by this unquestioned fact concerning the structure and working of our vocal organs, we acknowledge the service he renders in revealing how by the slightest exercise of the Divine will, informed as it is by an infinite knowledge, the widest revolutions of change in organic life may be inaugurated and then intrusted for its further development to the effect of forces already at work in the world under established law. May not even Huxley's spontaneous and Dar-

win's fortuitous variations be the result of this Divine interference, if it be true in any instance that species have thus begun? As these theorists make no pretensions to having discovered the origin of these individual variations, how can they reasonably object to our reverently regarding them as the results of direct volitions of Divinity? It might, perhaps, be suggested that as the intellectual and emotional states of the mother at certain critical periods in the development of the foetus leave upon it an indelible impress, possibly God may by dropping a simple suggestion at those times of crisis effect any desired change, for surely he can communicate with his creatures if they can with each other; indeed, we may safely say his facilities for this mental commerce as far transcend ours as does his knowledge of mental law.

While, then, we can hold it quite probable that creations have come through birth under law, we can also perceive how this system of conditional forces can help rather than hinder the efficient interposition of Divine will. We can therefore offer no welcome to the thought that God ended direct personal shaping of the destiny of his creatures in a past so remote that æons of geologic time have since then rolled by in an almost endless succession; for the very theory that thus removes him as a Creator, when followed out to its legitimate, logical conclusions, equally removes him as Father and Friend, as the sympathetic Answerer of the passionate pleadings of stricken hearts.

THE SCIENCE OF HISTORY.

Buckle, in his "History of Civilization in England," a work of exhaustive research and bold inductive reasoning, champions what is now one of the most popular of the fallacies that have sprung from this naturalistic tendency of modern thought which we have been considering. Natural phenomena have been discovered, as we have remarked, to be the effects of conditional forces working by fixed methods. Buckle attempts, and with a show of success, to reduce all social phenomena to a like perfect regularity in proof that human history is subject to laws as immutable, irresistible, and comprehensive as those which control in the revolutions of planets, the crystallization of salts, or the growth of trees; that mind and matter, being each under the absolute control of a separate code of exact laws, produce, when brought into collision, reciprocal modifications that are also, in their turn, as unavoidably systematic as the simpler actions of which they are the necessary resultants; that it is possible, the general antecedents and surroundings of nations or individuals being given, to predict their future destinies with the certainty of a solar eclipse.

I will briefly outline his more important statements.

Men multiply most rapidly, he claims, in those countries where nature furnishes food in greatest abundance in return for the least toil. This cheap living, followed by this overstock in the labor-market, rendering work very productive and wages very low, leads inevitably

to an unequal distribution of wealth. The great mass of the people, thus kept hopelessly poor and ignorant, become the hereditary burden-bearers of capitalists whom their productive industry has made incalculably rich. Here civilizations must first take rise, and governments must become uniformly despotic. The Brahmins, the Pharaohs, and the Incas are instanced as at once the oldest and the most absolute of the world's dynasties. India has her rice-fields, Egypt her date-palms, and Peru her Indian corn. These products have from the remotest antiquity constituted the national food; they are indigenous to the soil, abound in nutriment, and, under the joint action of the excessive heat and moisture common to these lands, return a fabulous yield. On the other hand, the eastern portions of North America are far better watered than the western, while the western are much warmer. Moisture and heat being thus widely separated, nature is less bountiful, and in consequence only wild tribes of Indians roamed through her forests at the time that powerful and populous civilizations flourished in Southern Mexico and Central America. There are still extant ruins of royal palaces that unquestionably point to dense multitudes, unequal distribution of wealth, and most despotic forms of government, hundreds of thousands of workmen being employed for entire generations upon the walls of a single edifice. In Brazil an excess of vegetation has worked results similar to those caused by its deficiency elsewhere. Covered with a net-work of the noblest rivers, heated by a tropical sun, and swept by eastern trade-winds that sup up the waters of the Atlantic only to shower them down again when chilled by the lofty

mountain-ranges on the west, its plant, insect, and brute life exists in such wild profusion that all hope of human subjugation and tillage is forever precluded. Though it is twelve times the size of France, and its coast studded with the finest natural harbors in the world, no ruins have ever yet been found within it of former civilizations, and its scattered people can boast of none to-day.

He further claims that in tropical and volcanic countries literatures and religions owe their distinguishing characteristics to irresistible influences that there emanate from the sublime and threatening aspects of nature, the imagination inevitably tyrannizing over every other mental faculty. The Italians and the Spaniards, for example, have enthusiastically and successfully cultivated poetry and painting, while with them the study of the sciences has perceptibly languished. The books of India, written on whatever theme and with whatever intent, have, with but rare exceptions, been expressed in metaphor and in rhythm. The Hindoo histories are filled with the wildest fancies, millions of years being soberly claimed for the lifetime of some of their early kings, and thousands of millions of years for their code of laws, the Institutes of Menu. The forms of their temples and the character of their gods witness to the terrible conceptions that throng their thoughts in consequence of the mysterious physical forces which with titanic strength ruthlessly smite down at once their homes and their hopes. Siva, one of the Hindoo triad, is a hideous, three-eyed, mad monster, girdled with snakes, wearing a necklace of human bones, and clothed with the fierce tiger's skin, while over his shoulder rears

the head of the deadly cobra-de-capello. The description of his wife, Doorga, is a still more frightful fancy, evidently the joint work of dread and wonder. In Egypt, Mexico, and Peru, as far as known, kindred religious beliefs were entertained. But in Greece, where nature was less dominant and destructive, much milder ideas of the supernatural prevailed; the gods were clothed with forms, feelings, and forces mainly human. That the present strongholds of the Roman hierarchy are in volcanic countries is accounted for on the same hypothesis.

It is confidently asserted that these influences of nature upon nations thus peculiarly circumstanced are insurmountable, that these mischievous inequalities in property, so replete with despotism, it is impossible to prevent, and that the wildest and most ruinous superstitions must forever curse the religious thinking of those whose imaginations are thus by impending perils incessantly kept at fever-heat. In countries, however, where the climate is mainly temperate, where food and shelter are secured at greatest expense and the aspects of nature are less imposing, the population is proportionately diminished, property is more widely distributed, there is less of the spirit of caste, the prerogatives of rulers are hedged in by constitutional guarantees, the imagination is no longer left to tyrannize over the reason, the earth and its inhabitants are matters of scientific inquiry, and prevailing religious beliefs are founded on broader and calmer thought. The scales thus turned, nature subordinated to man rather than man to nature, we would naturally conclude that here surely human will becomes the arbiter of human des-

tiny ; but it is boldly claimed that a careful study of statistics inevitably leads to a directly opposite conclusion. By generalizing countless observations extending over countries in different grades of civilization, with different opinions, morals, and habits of life, a remarkable regularity in human actions is professed to have been found, and this is claimed as an incontestable proof that the minds as well as the bodies of men are subject to immutable laws ; they, when freed from the tyranny of nature, implicitly obeying internal spiritual enactments, developing according to the condition of their own organism. Crimes of every sort, even those apparently most arbitrary, are professedly found from the reports of government officials to be as uniform as the ebb and flow of ocean tides. Schools of philosophy, operations in trade, solemnizations of marriage, even aberrations of memory, are claimed to be marked by the same necessary and inevitable system. Indeed, none of the actions of men are believed ever to be inconsistent, however capricious in appearance, but rather to constitute parts of a scheme of universal order. The progress of inquiry is becoming so rapid and earnest in this direction, a confident expectation is expressed that before another century the chain of evidence for this belief will become complete, and it will be as rare to find a historian who denies this undeviating regularity in the mental world as it now is to find a philosopher who denies it in the physical.

Such is the Doctrine of Averages, which Buckle has ransacked the libraries of every language to prove, and on which through two ponderous volumes he has lavished a most brilliant rhetoric. To reduce history thus

to a science is, beyond mistake, one of the manifest tendencies of the times, growing out of the wonderful success that has attended investigations of natural phenomena. This new method of research, studying mankind *en masse*, tabulating human actions into certain averages, is no doubt destined to afford invaluable help in the solution of many a puzzling problem of life ; but its advocates, instead of modestly regarding the results thus far reached as partial and imperfect views of truth, pronounce without hesitancy as unscientific, and consequently false, the doctrine that men are free and that God answers prayer. However plausibly these philosophers may argue against free will, so long as they classify human actions as either virtuous or vicious, which is frequently done in the pages of Buckle, their reasoning requires no refutation, for moral accountability can never be predicated of machines. Only their second conclusion need, therefore, engage our present attention.

Granting that modern science has successfully proved that the forces that produce intellectual as well as physical phenomena are strictly conditional, working by unalterably fixed methods, does it necessarily follow that the effects of prayer are simply retroactive, that its practice is but the fruit of superstitious ignorance, destined with it sooner or later to disappear? Horace Bushnell, ably following out the suggestions of another, helps us to an intelligent negative answer. Although the arguments popularized by him were designed solely to remove objections urged by physicists, this new doctrine not yet having passed into print, I can see no reason why they are not equally fatal to objections that

grow out of Buckle's theory of thought. Both are based on the common error of confounding the *super-natural* with the *contra-natural*. The human will, being unconditioned in its action, is rightly considered *super-natural*, though it is wholly incapable of destroying a single one of nature's forces or of abrogating a single law. For instance, I lift a book. I have not by this act destroyed the force of gravity. The book still has weight: I have simply overcome that force by a superior one. How the will through the nerves contracts the muscles, no one can tell; but that it does, all agree. God once willed that an axe should float upon the water. It is not necessary to suppose that he destroyed the weight of that axe. It may still have been heavier than the water, as the book is still heavier than the air. The force of his will for the time being may simply have overmastered the force of gravity, not destroyed it.

Take another view of the subject. God has imparted to matter, as has been remarked, certain chemical forces that remain inoperative until certain fixed conditions are fulfilled. I hold in my hand a match. There is here imprisoned a devouring fire-monster. By a single stroke I comply with the conditions that unfetter it, and it bursts into flame. That force, once freed, will, if the conditions of its action continue to be complied with, finally consume continents and convert oceans into steam. I pour a few drops of nitro-glycerin into a mountain of solid granite. By the simple blow of a hammer I can break the chain of the Titan, and the mountain will be convulsed with earthquake. Thus by the strictest compliance with nature's laws I make ser-

vants of her forces. If the human will, guided by an exceedingly limited knowledge, has been able so wonderfully to transform the face of the earth, whitening its seas with sails, bridging its streams, tunnelling its ranges of mountains, covering its continents with a closely-woven net-work of canals, railroads, and telegraphs, turning deserts, even ocean-beds, into gardens, clay and pebbles into porcelain and plate-glass, trees into temples, and quarries of rock into pillared palaces, why may not the Divine will, guided by an infinite knowledge, accomplish its purposes, as we have already suggested, by precisely similar processes without the least disturbance of natural law? A miracle is both supernatural and superhuman, its accomplishment requiring stronger will and profounder knowledge than are within man's reach. That Christ violated or annulled a single natural law I seriously question, although the evidence is incontestable that in checking certain natural processes and quickening others he transcended human power. By administering proper antidotes at proper seasons men have succeeded in arresting many diseases which would have destroyed their victims had the course of nature been left undisturbed, and there are well-authenticated cases of like results being secured by simple acts of will.

If Christ was gifted with an indefinitely multiplied and sustained power of will, embracing unbounded personal magnetism, a point too often overlooked, and was also gifted with an intuitive insight from which not a single secret of nature was hidden, what disease could he not master? Indeed, what hinders us from believing that without the repeal of a single phys-

ical law the dead were by him again quickened into life?

Apply this power of will, if you please, to the currents of human thought. Grant that opinions are crystallized with as much regularity as diamonds, that the laws in each case are equally immutable, yet, though the human will cannot stop the flow of thought, it can materially change its direction; though it cannot annul laws of association and suggestion, it can fix the attention, and thus, by the aid of those very laws, secure any desired end. Grant that persons have been powerfully influenced by natural scenery, national and social surroundings, inherited restrictions and biasses of thought, that those influences have left such an indelible impress that we can readily detect the residence, parentage, pursuit, and position in life of casual acquaintances; still those same influences have repeatedly yielded to the superior might of the human will. Buckle himself inadvertently admits that great thinkers have appeared from time to time, who, devoting their lives to a single purpose, have been able to anticipate the progress of mankind, and to produce a new religion, or a new philosophy, by which important effects have been eventually secured; that frequently their sentiments have been so far in advance of their age as to remain for a long while inoperative, and to call down upon them the bitterest persecution. He has with the same remarkable inadvertence also admitted that the cause of the coming of these heralds and helpers of progress is wholly unknown. Here, it seems to me, he has gratuitously placed in the hands of his opponents means for a complete refutation of his whole argument. What

hinders the belief that in such cases God quietly dropped a suggestion and then left it to the control of the immutable laws of thought? Is God necessarily shut out from us any more than we from each other? That men's wills are by no means thus enslaved, but that, on the contrary, the Divine suggestions are often scornfully ruled out of the mind, the very presence of sin in the world is a sufficient witness; that these fixed mental methods, instead of excluding God's providence, are susceptible of rendering it invaluable aid, scientific discoveries, when once they are carefully and candidly studied, most emphatically affirm.

There is another of Buckle's admissions which tells powerfully against him and gives a peculiar emphasis to my last remark. It is that nearly all advancements in knowledge have come through deductive forms of reasoning, by first conceiving theories, then subjecting them to the test of accredited facts,—a remarkable admission from a strenuous advocate of Baconian philosophy, but its truth was too well known to admit of successful denial. Whence came those sudden flashes of thought that in the fulness of the years worked such mighty revolutions in human destiny? Why was the mind so constituted as to pass into those strangely receptive moods so common to it, of which we all have at times been conscious? I know of but one answer.

Many Christian defenders are disposed to hold that the course of nature is nothing but God's will producing certain effects in a constant and uniform man-

ner, every event in nature being the direct act of God. They perhaps would apply to the phenomena of the intellect this same interpretation. The formation of a crystal, the opening of a rose-bud, the flutter of an insect, as well as the overthrow of a sinful Sodom, would to them imply the immediate presence and direct volition of Divinity.

Others hold that God has foreplanned everything that has or will come to pass, to the minutest detail and to the remotest time; that each miracle of Christ, that each answer to prayer, was fully provided for in that far-off past when planets and suns were yet but unrealized thoughts revolving in the Divine mind; that the whole universe is constructed like a music-box, which, once wound, produces with unbroken regularity, by the arrangement of the posts on its revolving cylinder, tunes of the widest selection, some of them indifferent, some discordant, some of surpassing sweetness, the changes effected in nature and history being but the methodic movements of a machine,—God dwelling at an infinite distance from his creatures, no longer actively interested in the affairs of the world.

The first theory would rarely gain a convert among men of science; the second does violence to every craving of the heart.

But the theory which I adopt, and in this paper have attempted to prove, is that physical, and perhaps intellectual, phenomena are due to an efficiency once imparted by the Creator to the earth and its inhabitants, but now abiding in them, operating apart from himself and subject to fixed conditions; that through compliance with these conditions the forces of matter

and of thought become servitors of the Divine will in the same way as of the human, only in an immeasurably greater degree. This theory, I think, accords most perfectly with the claims of science, and enables sad and discouraged souls to feel the warm grasp of the hand of their heavenly Father.

MENTAL LIFE BELOW THE HUMAN.

I REMEMBER reading some years since a very ingenious paper* advocating that crystallization is but one form of organic life. The molecules as they take their places, like trained soldiery, along certain lines inclined at certain fixed angles, seem to be obeying the bugle-call of some mysterious, vitalizing force within. There is here such oneness of conception, such concert of action, that an explanation like this very naturally suggests itself. But these marvellously symmetrical structures can be crushed, or melted, or dissolved, their atoms widely separated, their order destroyed, yet they will, when again favorably circumstanced, congregate after the same set patterns, embodying the same conceptions of faultless form. Can it be that when one particle after another of the crystal is wrenched from the grasp of the organizing spirit, this spirit, disembodied, robbed of its kingdom, driven out of matter, waits somewhere and watches until the victor force has spent itself or has entered upon other conquests, and then suddenly retakes its throne and pronounces over the subject molecules the self-same spells of enchantment?

* Rev. Dr. H. B. Baker, in *Psychological Journal*, July, 1870.

This certainly is true of no other vital force. Furthermore, we cannot detect in it that perpetual change, that constant arrival and departure of atoms, that ceaseless activity, which characterize all other life. *Æons* of time may come and go, and there will remain precisely the same matter cast in precisely the same mould. This crystalline spirit, if such there be, must date its birth far back in that "beginning" of the Mosaic record, for, as with it death is at most but a temporary suspension of animation, it must have been twin-born with matter itself. Still, though the majority of scientists conclude to place it at the head of the class of inorganic forces, they have but named the mystery, not solved it. We still stand confronted with the fact that the atoms rally at the bugle-call of some recognized commander.

Investigators have also been puzzled to draw sharply the dividing-line between vegetable and animal life. There are some plants that seem half animal; some animals that seem half plant. Touch the sensitive plant, even breathe upon it, and its delicate leaves fold together and its branches droop languidly as though through their tissues lay a net-work of minute nerves and along those nerves ran shudders of pain, even shocks of paralysis. When the sun sets this plant falls asleep like a tired child. At this same hour, too, the blossoms of the anemone close their petal eyelids and wait for day. The goat's-beard chooses an earlier hour, but is equally regular in this strange procedure. The leaf of the Venus's flytrap with its viscid surface, or that of the sundew with its limed bristles, is but a net spread for some unwary insect. Let the little creature seek to rest its feet never so lightly, and its doom is sealed.

While it is struggling desperately to free itself, the sides of the leaf close in over it like the lids of fate, and the plant drinks its blood with the heartlessness and greed of a spider.

Dr. Carpenter, in his "Introduction to the Study of the Foraminifera,"* says, "The physiologist has a case in which those vital operations, which he is elsewhere accustomed to see carried on by an elaborate apparatus, are performed without any special instruments whatever; a little particle of apparently homogeneous jelly changing itself into a greater variety of forms than the fabled Proteus, laying hold of its food without members, swallowing it without a mouth, digesting it without a stomach, appropriating its nutritious material without absorbent vessels or a circulating system, moving from place to place without muscles, feeling, if it has any power to feel, without nerves, propagating itself without genital organs, and not only this, but in many instances forming shelly coverings of a symmetry and complexity not surpassed by those of any testaceous animals."

While some plants have stomachs, some animals have roots. The rhizocephalous crustaceans do not feed by mouth, for they are destitute of an alimentary canal, but live by absorbing through root-like processes the juices of the animals on which they are parasitic. The jellyfish is a transparent and also almost structureless mass of vitalized matter. As it rises and sinks in the wave it seems little else than delicately tinted sunlight, caught in some wandering eddy. Take it from the water, and it fades to a film.

* Preface, p. 8.

Trembley,* the naturalist, once chanced upon some strange forms of diminutive water-life, which for a time he was at a loss how to interpret. They were insect-eaters, their cylindrical bodies having fringed ends with which they seized their prey. Trembley in the course of his experiments cut them into as many as fifty pieces, and, to his astonishment, found that instead of destroying life he had but multiplied it, for in forty-eight hours each piece became a distinct individual. He also found on these living cylinders a number of small adventitious buds, cropping out everywhere, which gradually enlarged, sent out tentacles on their free ends, and finally dropped off into perfect beings. These pseudo-plants are now known as one of many species of polyps, of which other equally strange facts have come to light. The larvæ† that are hatched from the eggs of the *Aurelia* swim about very lively for a couple of days, and then, as if tired out, anchor themselves to the floor of the sea. This done, they grow up into long slender stalks with enlarged tops, in the centre of each of which a hole opens, uncovering a cavity, and around the hole little buds appear that lengthen at last into limber filaments. Thus equipped, these creatures never again move from their moorings. After a while the surfaces of these stems are roughened here and there with buds, some of which unfold without further delay into perfect polyps; while out from others slender shoots commence trailing along the ground, until, at some secret

* A. de Quatrefages' "Metamorphoses of Man and Lower Animals," pp. 137-38.

† Ibid, pp. 153-55.

signal, their ends widen out into mouths with fringed borders and a new individual life begins. Are these some rare variety of strawberry-plants that flourish in Neptune's sea-gardens? But here and there one of these trumpet-shaped bodies becomes cylindrical and three or four times the length of its fellows, and soon just beneath its fringed end a groove makes its appearance, as if some invisible cord was being drawn tightly about it; then another a little farther down, and then another, until the cylinder is changed into a series of rings. As the grooves deepen, the edges of the rings become scalloped, and their wave-lines gradually more marked until they are changed into eight little arms with forked ends. This process of individualization goes on until each fringe of arms acquires an independent motion and until at last a complete separation is effected, one wheel after another swimming away with as distinct and perfect a nature as falls to the lot of any radiate, each destined to become the founder of a new family somewhere along the populous ocean-bottoms.

From the egg of another species,* called the Campanularia, springs a larva, which, after it has fastened itself to something solid, is changed into a little flat cake with a hole in the centre. About this hole there shoots up a hollow stem, and on the end of the stem there comes a bud, which swells out into the shape of an inverted bell. After certain changes have taken place inside its horny covering, a new polyp with tentacled mouth bursts through the membrane and unfolds like an opening flower. Then another bud appears on

* Quatrefages, pp. 173-74.

the stalk, and the same process is repeated, branch after branch growing out of the bowl of the stem. In the axils of the branches more buds come and they blossom out into more polyps.

Corals and stone-lilies, now known as the fossil skeletons of polyps, were, until the last century, regarded as rock-plants. The nature of sponges has, among naturalists, long been, and to some extent still is, a matter of question. Indeed, there are several phenomena which are catalogued under the non-committal name zoophytes, a combination of two Greek words corresponding in our language to "animal" and "plant."

In the propagation of the *Epistylis*, an infusoria,* we find the semblance to vegetable life carried a step farther. It multiplies both by buds and fission. The individual that develops from the larva divides itself into halves. On each half, which still remains joined to the parent stem, another branch starts and grows to the same height. These secondary stems also in time divide as the first, and so with the third and succeeding ones, until the colony presents the form of a wide-spreading tree, from the tip of each of whose branches opens the hungry mouth of an *Epistylis*. Here and there around the neck of one and another of these animals a groove appears, and about the groove a circle of fine hairs. The fissure continues to deepen until, like a ripe acorn, this strange fruit at last drops to the foot of the tree. But, instead of lying there like an acorn, it picks itself up and swims away to root fast to some other rock and become the starting-point of another

* Quatrefages, pp. 194-95.

tree in that mysterious, miniature sea-forest God first planted away back when the world was young.

These forms of being unquestionably mark transition-periods in creation. We surely witness in them new departures in nature,—advances upon the lower forms, with but a partial attainment of the higher. They are the gray twilight of dawn into whose texture are woven the fading threads of the old era and the faintest threads of the new. They lie along that border-line where the adjacent colors of the rainbow mingle. Yet, strange as it may seem, they furnish no basis for the hypothesis of Evolution, for their organs and habits have, without perceptible change, maintained their ground against all the supposed developing impulses of all the ages. By no influences of their natural environment, or of any artificial surroundings of man's devising, have they been advanced a hair's breadth from the good old ways of their earliest ancestors.

And right here, too, the theory of spontaneous generation, the establishment of which, extreme evolutionists hold, completes the chain of evidence that the original *nebulæ* of amorphous matter contained the promise and potency of all life,—this theory, as Quatrefages contends, is overthrown from its lowest foundations in the discovery of the law of geneagenesis. This eminent French savant asserts* that all known species, down to the very lowest in the scale of existence, in the vegetable as well as animal kingdom, however widely for a time they may seem to depart from the ordinary mode of reproduction, must, at stated periods, have re-

* Quatrefages, p. 280.

course to it or become extinct. For example, several generations of virgin aphides may be produced, and Bonnet,* in his experiments, has demonstrated this possible; yet, after a while, not only must females secrete true ova, but males must fertilize them, in order to secure a renewal of the pristine vigor of the species. The same is true of the ascidians. So, too, propagation by buds and fission is not perpetual. Polyps and infusoria may multiply for a certain set season without the union of the sexes, but there are, nevertheless, and must be, regularly appointed recurrences of the contact of sperm and germ, and in the individuals that spring from this union reappears the original plenitude of power. However long and tortuous may be the windings of the route chosen by nature in certain cases, it is clearly defined, and ends where it began, in fertilized ova. Such being the universal and invariable law, each species must be the descendants of a single first pair, possessing correlated sexual parts and functions, the possible product only of some direct, intelligent, creative fiat. Thus the profoundest researches of science confirm the statements of the inspired Seer.

Descartes and his followers, in their arguments against the existence of a soul, have cited the case of some of these pseudo-plants, to which we have briefly alluded. If, after a polyp has been severed into fifty pieces, a new head and tail will bud out of the cut ends of each piece, and the processes of life go on without abatement; if infusoria can of themselves divide and subdivide until, by spontaneous fission, a populous col-

* Quatrefages, pp. 130-31.

only springs from a single progenitor; if the cylindrical Aurelia can cut itself into a dozen slices, and each slice become an independent being,—then we are necessarily precluded from predicating of these and like types of existence the possession of a spiritual nature, indeed, of any proper personality, for an *ego* that is not absolutely indivisible is to us an impossible conception. But when these theorists predicate of the entire kingdom what has thus far been discovered true only of certain inferior classes in it, the soundness of their induction may well be questioned.

The fact that all classes of animals, without exception, even foraminifera, polyps, infusoria, and earth-worms, possess in some of their individuals, at a certain stage of their existence, the power of locomotion, would at first blush seem to indicate that their bodies were indeed the homes of spirits; but on the closest examination we can find no sign of self-consciousness, such as halting between two opinions, deliberating, exercising the power of choice,—no distinctive act of the will. Their motions may be, from all that yet appears, as automatic and unconscious as the folding together of the leaves of the sensitive plant, for they seem to follow with as rigid a uniformity and as absolute a certainty the exciting cause. This locomotive power is, with several classes, but a momentary possession, disappearing as mysteriously as it came, the animal no sooner striking a rock than it roots to it and sinks down at once and forever into the plant-like stolidity of the colonized multitude that sprout out afterward about its lengthening stem.

There is another type of transitional beings in which

may be traced characteristics of widely divergent classes. The most skilled anatomists are still disputing whether the *Lepidosiren*, even when in an adult state, is fish or reptile. There are fish that will with their long pectoral fins sustain themselves a full half-minute in mid-air and accomplish a flight of six hundred feet. There are squirrels whose fore and hind legs are so connected by membranes that they actually wing their way from tree to tree, their leaps measuring wide distances. There are mammals called rear-mice, or bats, which at twilight emerge from caverns or deserted ruins, or the hollows of moss-grown trees, and flit noiselessly about on distended, leathery webs, robbing the air of any gay insect that may be gadding about. Seals are air-breathing quadrupeds that suckle their young, yet their habitat is the sea, their legs are like the fins of fishes, and their nostrils they have power to open and close. One of their species nature has dressed in the spotted skin of the leopard; the males of another resemble the elephant in their lengthened probosces and contour of head; while those of a third have lions' faces and about their necks flowing lions' manes. The dolphin, the sword-fish, the porpoise, the grampus, are all air-breathing and warm-blooded mammals, yet finned and shaped like fish, and like them propelled by their tails. Eels are classed among fishes, yet their serpent nature has drawn out their bodies into snake-like length and slimness and stripped them of ventral fins and diminished and obscured their scales.

Geologists* tell us of bulky-bodied saurians that once

* Winchell's "Sketches of Creation."

peopled the seas and the air, one genus of which, the ichthyosaurus, was shaped like a dolphin, had the head of a lizard, the teeth of a crocodile, and the paddles of a whale; another, the plesiosaurus, had the head of a lizard, the teeth of a crocodile, the neck of a swan, the trunk and head of a quadruped, and the extremities of a whale; while still another, the pterodactyl, of twenty different species, resembled externally both mammal and bird, but in its essential structure was clearly reptilian, the individuals of some of whose species were veritable flying dragons with a sixteen-foot spread of wing.

The younger Huber proved, by frequent observations and experiments, which he most interestingly narrates in his work on *Ants*,* that the female red ant, after fecundation, bids good-by to her lover, who at once ingloriously steps out of life; that she then strips off, with her own mandibles, at her own instance, and seemingly without pain, the delicate gossamer wings with which nature has provided her for courtship and for easy and rapid transit in search of a suitable site for the new colony she is destined to establish; and that she ever after creeps about in the grass, laying her eggs and feeding and caring for her young as contentedly as if she had never possessed anything but short, hair-like legs to move her little body about, like the common neuters, the nurses and maids-at-all-work.

The Ephemeront† for two years lives in an archiform gallery which it has bored in some river-bank, below the water-level, grinding monotonously day after day

* Pages 116-17.

† Quatrefages, pp. 77-78.

the slimy mud upon which it feeds. It walks on six legs, and yet it breathes like a fish. When the two years are ended, rudimentary wings bud out of the upper part of its thorax, and at last, in the quiet twilight of some August evening, its old skin cracks open and falls off like a ripe chestnut-bur, and with it, too, fall the gills and grinding jaws, and out comes the little creature so marvellously metamorphosed in its outward furnishings that it is hard to convince ourselves that an absolutely new creation has not taken place right before our very eyes. In its new life, spanned by a single brief hour, it abstains from food, having no mouth fit to receive it; it breathes the air through spiracles, poises itself on finely reticulated wings, thrills to love's rapture, deposits its masses of eggs, and then, with the fading twilight, flits from the scene. All insects are characterized by similar series of metamorphoses. Indeed, all animal life, even the human, experiences analogous changes, though these developments, with the majority, occur while the young are still unborn.

Nowhere in the animal kingdom is there so favorable an opportunity for peeping into nature's workshop as in the metamorphoses of the frog. This animal* is a worm when it comes from the egg, and remains such the first four days of its life, having neither eyes, nor ears, nor nostrils, nor respiratory organs. It crawls. It breathes through its skin. After a while a neck is grooved into the flesh. Its soft lips are hardened into a horny beak. The different organs, one after another, bud out, then a pair of branching gills, and last a long

* Quatrefages, pp. 89-91.

and limber tail. The worm has become a fish. Three or four days more elapse, and the gills sink back into the body, while in their place others come, much more complex, arranged in vascular tufts, one hundred and twelve in each. But they, too, have their day, and are absorbed, together with their frame-work of bone and cartilage, to be succeeded by an entirely different breathing apparatus, the initial of a second correlated group of radical changes. Lungs are developed, the mouth widened, the horny beak converted into rows of teeth; the stomach, the abdomen, the intestines, prepared for the reception of animal food in place of vegetable; four limbs, fully equipped with hip- and shoulder-bones, with nerves and blood-vessels, push out through the skin; while the tail, being now supplanted by them as a means of locomotion, is carried away piecemeal by the absorbents, and the animal passes the remainder of its days as an air-breathing and flesh-eating batrachian.

In this second group of phenomena investigators have been as greatly puzzled as in the first to draw sharply the dividing-line between the various classes into which, according to Agassiz, are separated the four great types of the animal kingdom. True, they have pretty generally agreed to assign animals to those classes in which they last appear. But the ephemera, for instance, are only for a single hour winged insects, while for two long years preceding they are a combination of fish and worm. So, too, locusts burrow in the ground as grubs for seven years, and sometimes for a longer term, before they fill the air with the roar of their wings. And it is only for six weeks they are permitted to revel in this freer, gayer life. They eat nothing,

subsisting simply on the deposits of fat packed away under their skins during those long years in which they crawled through galleries sunk far out of reach of both sun and frost. Their sole business now seems to be, like the ephemera, to deposit the eggs out of which shall come the new generation. And then there are other forms, in each of which, even in the adult state, are so deftly joined essential characteristics of two, three, sometimes even more, classes, that they have baffled the ingenuity of scientists to properly label them.

When man was placed on the scene, there was, I believe, an entirely new departure in creation, a departure as radical as when animal life first came to share the earth with the vegetable. Before man's advent there was the reign of instinct; with it was ushered in that of reason. Chemists have, by their experiments, brought to light many striking contrasts between the vegetable and animal forces in their effects on matter. Contrasts equally striking exist, as I purpose showing, between instinct and reason respecting their sources of knowledge and the character and methods of their work. I also propose to show that as characteristics of plant and animal are, as we have seen, sometimes strangely interwoven in a single organism, and also as important parts in the bodily form and function of widely divergent classes are found not infrequently coexisting or following each other in unbroken sequence in the same individual, so instinct and reason, though differing as radically as the animating principles of plant and animal, and though as little likely to have been the outgrowth one of the other, yet are found in each other's company, serving as each other's complement and support when-

ever any exigency arises whose demands they are separately incompetent to meet. It has therefore proved equally difficult to draw sharply the dividing-line between the kingdoms of these two forces, or to determine the mental status of those of God's creatures who occupy planes inferior to our own.

Many theories have been advanced, but none have proved sufficiently tenable to have silenced controversy. Indeed, I know of no question on which opinion is more afloat than that of the thought-life of the lower sentient creatures that so throng the waters, the earth, and the air.

Instinct I conceive to be an impulse implanted in an organism to aid in its development and maintenance. It is as much a part of an organism as an appetite, and is followed as blindly. The intelligence and skill displayed in the marvellous works accomplished under its guidance belong to its Author, not its owner. It operates with as undeviating uniformity as the force that organizes a crystal or a tree, or the shell-palace of a foraminifera. Its workmanship bears the same marks of Divine perfection. The animal is as ignorant of the ends to be attained, or of the adaptation of the means employed, as it is when, prompted by hunger or thirst, it supplies its body with appropriate nourishment. The ideas embodied are no more a measure of the conscious thought-life of the animal, than those embodied in the processes whereby its digestive organs elaborate its food into bones and muscle. The thinking is that of the Creator, not of the creature. It, however, would be as idle for us to attempt to pry into the mystery of its real essence, as into that of the force under whose

direction the buried seed bursts its walls, and dew, air, soil, and sunlight are moulded into branch and leaf and flower and rounded fruit ; or to attempt to fathom the mystery of that force which hardens into horn the pulpy lips of a crawling, skin-breathing worm, pushes out here a pair of branching gills and there a limber tail, and then, when the pattern changes, quietly brushes these aside and in their place builds up lungs and teeth and jointed limbs, and alters the processes of digestion, transforming thus a worm first into a fish, and afterward into an air-breathing, flesh-feeding batrachian. But on examining the phenomena, which alone are within our reach, I have been deeply impressed with the intimate analogy I have found existing between instinct, in the character and methods of its work, and those forces which build up vegetable and animal organisms, and am persuaded to believe that it also should be grouped with them as a kindred formative force, and that hence its marvellous achievements should not be regarded at all as revelations of the Mental Life below the Human. I will cite a few of the facts which I think fully justify this conclusion.

Autenrieth, the celebrated German naturalist, has described for us the metamorphoses through which pass the individuals of a species of butterfly named by him *Nachtpfauenaugé*. Its grub-life, like all of the same genus, is one of unbroken monotony and dulness. The sum-total of its experiences consists in gorging on leaf-pulp, crawling under cover when it rains, and now and then casting its skin. It has no home-life, its parents having died before it began to live. It has no companionship ; it seeks none. This sluggish, solitary,

gormandizing, creeping worm is at a certain set time suddenly arrested by the electric thrill of some new strange life. It stops eating, and, under a mysterious, prophetic impulse, commences to weave about its body, out of delicate threads that issue from it, a silken palace of double-roof, so ingeniously braced by innumerable supports that it both withstands violent attacks from without, and yields to the almost spirit-touch, from within, of that most fragile of fairies which, out of the homely and prone body of the grub, rises erewhile, on brilliantly-tinted wings, to flutter and float like a stray bit of sunset on a summer's evening zephyr. By this unique contrivance this little creature escapes on the one hand from outside violence, and on the other from the sad fate of self-burial.

Is it conceivable that this worm possesses such intimate acquaintance with the occult laws of mechanics as this piece of work presupposes, that it has acquired, by its own exertions, this masterful skill in architecture, or that it really discerns with clear prophetic vision approaching changes in its form, its capacities, its needs, and its destiny? It has had no instructor, no personal experience, no working model. This is its first attempt, yet it bears the stamp of absolute perfection.

The butterflies of other species, when the hour is ripe for them to issue from their cocoons, secrete a fluid that acts on the silk as a solvent. This grub, as if conscious from the first that such power will never be given it, constructs its case on widely different principles. To affirm that it inherits this knowledge, skill, and prescience does not, in the least, clear up the mystery; it only carries the inquiry farther back, for the first grub

must have been equally able to spin a similar cocoon on first trial, or it never could have developed into a butterfly and become the progenitor of a species.

The larvæ of ants,* though they can never secrete a solvent, unhesitatingly enclose themselves in silk wrappings, that bind them as firmly as bands of steel. It would be utterly impossible for them, left to their own resources, ever to break through the walls of their case. Do they know that they will be provided with professional nurses who, somehow, will be such adepts in their calling that they will cut the binding threads at precisely the right time, will free and extend the delicate gossamer wings of their infant charge, and for a season serve as their guides and purveyors?

The larvæ of queen-bees also spin for themselves silken sheaths, yet, strange to say, they leave these at the exposed ends so imperfect that when a young queen assumes sovereignty she easily inserts her sting, thus killing in their cradles all those who otherwise would have soon become powerful contestants for the crown. Huber asserts† that this murderous instinct manifests itself almost immediately after birth, but if the elder neuters judge it best for the hive to swarm, the queen is restrained by a strong guard, who drive her away from one cell after another, until, her excitement rising with each repulse, and spreading like a contagion through the colony, she precipitately sallies from the hive followed by a vast retinue of sympathizing attendants. When, however, it is thought inexpedient to further weaken the community, the queen is left free to

* Huber on Ants, p. 117.

† On Bees, p. 147.

destroy all the seed royal with her poisoned dagger. Why should these larvæ, in marked contrast to those of drones and neuters, always leave crevices in their cradles, so that some royal assassin in a fit of jealousy can murder them in their sleep? Have they been informed that a single queen can lay between two and three thousand eggs daily, and therefore be abundantly able of herself to populate the hive? Do they anticipate that if allowed to live they will become burdensome supernumeraries, except in rare crises, and are they prompted by exalted patriotism when they provide thus for their own early martyrdom?

The saw-fly, after making her double incision in the stem of a rose-bush, so poisons the tissues of the wood that the minute eggs she deposits are saved from being grown over and thus hopelessly crushed or imprisoned. She also so limits the number of eggs on any one bush that her children never go hungry. Does she understand the effects of the poison? Does she realize the imminent danger to which her eggs are exposed? Has she consciously contrived how to avert it?

By poison, locusts also provide for the safety of their young. The branches of the forests visited by their innumerable multitudes look as withered as if struck with blight or swept by a tempest of fire.

The solitary wasp* brings to the mouth of a pit which she has dug with her mandibles, and into which she has dropped an egg, a given number of small grubs so stung that their bodies, while smitten with paralysis, have just enough life left to keep them from decay

* Encyc, Brit.

until there shall issue from the egg the worm, whose hungry maw they are fated to fill. This solitary mother-wasp, with absolutely no experience or observation of her own or of others to guide her, acts as if she knew positively not only that a worm would some day be hatched from her egg, but precisely when that day would come; that this worm would not have the faculty to care for itself, and that she would never live to care for it; that grub-meat, though unpalatable to her, would be keenly relished by it; that a given number of grubs would suffice for its needs; and that they, shot through with her subtle poison, would lie dormant till it came.

This same acute discrimination may be observed in all insects in selecting for their egg-deposits such surroundings as will most surely conduce to the hatching and subsequent maintenance of their young, although the conditions of their offspring's life are in most marked contrast to their own. One will choose a particular kind of leaf, another the skin of a certain living animal, still another that of a certain dead one. Guided by this parental instinct, birds set out on their migratory journeys across entire continents, over pathless deserts and seas. Salmon exchange salt water for fresh, following far inland the courses of the rivers, at times shooting up steep water-falls of great height and swiftness; the herring travel to the south, while the mackerel seek the colder currents of northern climes. Is it possible that these animals, untaught and inexperienced, are so deeply versed in biological lore that they are enabled by their own judgment to determine unerringly the precise conditions fitted for the development of the

embryo in the egg? And is it also possible for them to know in what localities they will find those conditions fulfilled, or for them to thread their way thither for the first time, without a guide, over prairies and sand-plains and tumbling ocean billows? Dr. Jenner* ascertained by clipping two claws from the foot of each of twelve swifts, that after nine months' absence in some distant country, they returned regularly for years, with the return of the breeding-season, to their old nesting-place.

It might be urged† that among swallows and martins, who congregate and move off in great bodies, the older ones have been over the route and now act as guides; but this cannot be said of nightingales, red-starts, or especially of cuckoos, who are deserted by their parents before they are born and reared in the nests of strangers. It is well known that those birds which raise several broods desert each in its turn, and become estranged as soon as they are old enough to require assistance no longer. This seeming knowledge of courses animals have shown under other circumstances. Bears‡ have, in times of great scarcity, been known to travel from their native woods through cultivated parts of the country for hundreds of miles, on a direct course, to a new wilderness abounding with supplies. Lord Brougham, in his "*Conversations on Instinct*," gives numerous instances of dogs, sheep, and other quadrupeds, being taken from thirty to two hundred miles

* Philosophical Trans. of Royal Society, London, 1824, p. 16.

† Ibid., p. 29.

‡ Rev. M. Smith's "*Elements of Mental Science*."

away from home, either in hampers behind coaches, or on shipboard, and, though having no scent to guide them, finding their way back, seemingly without trouble or delay, through an unknown country.

There is a spider* which chooses a river-bottom for its home and hunting-ground, and to effect its purpose builds for itself a diving-bell that embodies in its construction and management many of the principles of physics. It is made air-tight, turned mouth downward and tied on every side with strong cords to the bed of the stream. After its bell is thus finished and fastened, the spider comes to the surface, covers its abdomen with fine web, swims on its back till the interstices of this covering are filled with air; then, diving under the mouth of the bell, presses out with its legs the air thus entangled, displacing thereby an equal quantity of water. Again and again this process is repeated till the bell becomes habitable. What, can we imagine, first determined the spider, supposing it to be following out its own thinking, thus to locate its nest under water? for it has neither spiracles nor gills, nor any organs fitting it for such a habitat; or how did it study out so ingenious a method for making such an undertaking possible? The inventor of this bell must have known that air is lighter than water; that it can be mechanically retained in fine fabrics, and that when introduced into an inverted receiver it will displace the water instead of becoming absorbed by it. Has this spider been so close a student of nature as to have discovered these laws of physics,

* *Bridgewater Treatise*, vol. xi. pp. 296-97; also, "The Transformation of Insects," by P. M. Duncan, F.R.S.

and is it so gifted an inventor as thus ingeniously to have applied its knowledge, without instruction or experience or working model? This daintiest of palaces, that shines through the water like a globe of polished silver, must have been thought out in all its detail before the spider commenced spinning its first thread, for the weaver shows no hesitancy and makes no mistake. It must also have been the product of a single mind, for its parts are so intimately correlated that the absence of a single one does not simply obscure the conception, it totally destroys it. There must be either perfection or flat failure. This alternative was presented to the very first spider of the species.

There is another spider* classed among the "Vagrants," that spreads no snare, but, when a fly settles near it, steals along with extreme caution until, coming within striking distance, it fastens a thread of web to the spot, and with incredible swiftness and accuracy darts upon its prey, the thread serving as a strong cable to save it from a fall and enable it to regain its position. The contrivance and forethought here exhibited cannot be products of the spider's mind under the spur of experience, for its spinnerets are certainly not of its invention, and as the thread spun by them serves no other end, and served that as perfectly on the first leap as on any other, the spider must actually have been caught on a thread itself had spun before it knew it could spin it.

There is still another spider,† called the Pioneer,

* Bridgewater Treatise, vol. xi. p. 298.

† Ibid., pp. 287-89.

which for the perfection and ingenuity of its work may well excite our wonder. It bores in the ground a hole three inches deep and ten lines wide, and carefully covers it with two coats of mortar, the first rough, the second smooth and regular. Inside these it spreads a strong coarse web, and then over all hangs a most delicate silk tapestry. The door with which it afterward closes the entrance more especially commands our admiration for felicity of design and elaborate finish. It is a pronounced masterpiece. It is built of thirty alternate layers of earth and web, has bevelled edges, is hung on a spring hinge that makes it self-shutting, and is also, like the tube, lined with fine silk. It fits the aperture so perfectly, and on the outside so closely resembles the ground, it seems to vanish the moment it shuts. The mode of its construction gives it great strength, and the bevelling of its edges prevents it from being forced into the chamber beneath. It can never stand ajar, but shuts tightly the instant the spider passes. The apartment is perfectly water-tight and concealed from foes. What more palatial residence or secure retreat has been provided for any of God's creatures?

Wood-grouse are able to fly the instant they emerge from the egg; and there is a family of birds in Australia whose young, hatched from eggs buried in earthen mounds, no sooner see the light than they feed themselves, run and fly, and roost on trees.

How shall we explain this seemingly intuitive knowledge, evinced by both bird and beast, of the laws of perspective; their instant and perfect command over their bodies; their intelligent care of them, and their old familiar ways, as if they had waked from brief

sleep, instead of having stepped for the first time across the threshold of life?

The bee, for the storing of its rich honey-harvests, builds with its mandibles, out of laminæ of wax it removes from under its abdomen, a double row of hexagonal cells. Its comb, however unequal the surfaces to which it is attached, bears the severest test of the microscope for completeness and precision, though the bee performs its tasks without instruction or experience or protracted study, and works in the dark guided simply by its antennæ, its eyes being stone-blind inside the hive, their lenses having no adjustable focus and being constructed for long range. Its comb bears also the test of science. The most eminent mathematicians pronounce the angles to which the planes of the sides and ends of its cells are inclined to be precisely those which will secure the greatest strength with the least expenditure of material according to the principles of maxima and minima as laid down in the Differential Calculus. But think you the bee's apparent knowledge of mathematics any more real than that of the buds which break out about the bole of a tree in accordance with the rule of arithmetical progression? Should we be disposed to plead that the skill and knowledge here displayed are but transmitted acquisitions of some former age, the difficulty would still confront us of explaining how these acquisitions could at the first have been made. But this plea is in this instance denied us, as neither the father nor mother of the worker-bee ever moulded a pellet of wax, or, for purposes of storage, ever thrust their heads inside a flower-cup. They are born aristocrats. They have neither skill in architecture, knowl-

edge of mathematics, nor habits of thrift ; indeed, they have neither long and flexible tongues, nor honey stomachs, nor pollen-baskets, nor wax-pouches, to transmit to this their strange sexless child.

When their queen dies, the bees select the larva of a worker less than three days old, greatly enlarge the walls of its cell by combining it with others adjoining, change its position from a horizontal to a vertical one, and provide for it a superior kind of food called royal jelly. How do these nurses know that such treatment will secure the desired transformation ? They here prove equal to an emergency which they could not have foreseen, and act as if they were acquainted with laws of biology which scientists have thus far searched for in vain. The very first brood-comb that was ever built by the first swarm of bees must have been made up of neuter, drone, and queen cells, and the latter must have been distinguished from the others by these same marked differences in size, position, and contents.

The ducts that lead from the different ovaries of the queen finally unite in a common oviduct, on the side of which is a little pea-shaped sack called the spermatheca. About it voluntary muscles are so placed that the queen can or not, as she chooses, fertilize her eggs as they pass down the tube and thus determine the sex and destiny of future imagos. She not only seems conscious of this power, but to use it intelligently, taking care to deposit the unfertilized eggs only in drone cells. But is she, in fact, conscious of the consequences of her acts ? Is this most profound knowledge her own ? What determined the first bee-builders of drone cells to make them larger and longer than those of neuters ? or what deter-

mined the first bee-foragers to bring home in their baskets pollen instead of nectar to feed the future larvæ? How did they know that this was fit food for any one? If the queen returns successful from her marriage-flight, the workers wage a merciless war against the drones, who, not having been provided with any weapons of defence designedly, fall an easy prey to the poisoned darts of their destroyers. How do the workers know that the drones will henceforth be only a burden to the colony? Are they self-appointed executive officials of the Divine Code? Or is their commission to be found in some implanted impulse which commands and secures from them unquestioning obedience?

Do those lizards which live along the banks of the La Plata know that when, at the approach of danger, they suddenly shut their eyes and flatten themselves they are actually hidden because of the close resemblance of their mottled tints to the sand-plains where they lie? Or do the pipe-fish understand that they, with their reddish streaming filaments, are hardly distinguishable from the sea-weed to which they cling with their prehensile tails? Does the ray or torpedo realize at the first that it has an electric battery by whose discharge it can send a shock of paralysis along the nerve-fibres of its foes? Is the cuttle-fish, which in an instant beclouds the water with ink, any less surprised than its bewildered pursuer? Do any of the animals before they have actually used their weapons, either of defence or attack, and used them, too, dexterously, know that they possess them? or have they reflected how they can be used with most telling

effect? On the first trial in each case there must have been, it would seem, an instantaneous and unthinking obedience to some impulse which to them is wholly unintelligible.

Upon the testimony of such facts as these, of which the earth is full, we are warranted in believing that in works of pure instinct animals blindly follow impulses that, like other forces in nature, operate methodically and under fixed conditions; that they have no more idea of what will be the result than they have of what multiform changes their food is to undergo, or in what way or for what purpose those changes are to be effected.

In most of the instances cited I have taken pains to point out the utter impossibility of alleging that these were but phenomena of "lapsed intelligence," a relic of some acquired experience. This same impossibility attaches equally to all. In this department of the life of animals we witness no signs of growth in either skill or knowledge. Perfection in both is reached at a single bound prior to experience, and independent of the aids of instruction. There would be no change in the problem were we to transfer the inquiry to the habits and achievements of the first individual in each species. We are shut up to the belief that the thinking here embodied is traceable solely to the Infinite Mind.

So deeply impressed have some observers been by the profound wisdom and marvellous skill displayed in works of instinct, that they have regarded the lower animals simply as automatons, moved by direct acts of Divine will; as exquisitely-constructed musical instruments, whose keys God's own fingers touch. But how can those who entertain this view explain

certain errors, and they are by no means few, into which instinct is betrayed? The flesh-fly lays her eggs on the blossom of the carrion-plant, mistaking it for veritable flesh, and thereby failing to secure the two great purposes in nature,—the preservation of the individual and the continuance of the species. A hen will sit on chalk or porcelain eggs, will have motherly attachment for ducklings hatched by her, will worry when they go into the water lest they drown. She has even accepted young ferrets for a brood, and fallen into equally ludicrous errors. A dog will bury a bone already gnawed, and food to which he has no occasion to return. Animals frequently use their weapons of defence on false alarms, and they use them with all that wonderful dexterity and inexplicable wisdom that suggest Divine interference.

Can the phenomena of instinct be accounted for by the peculiarities of bodily structure? Unquestionably there exists between the two a deep harmony, a close correlation, for changes in the instincts of insects are found to keep pace with changes in their organization. The ephemeron experiences no less than seventeen tolerably well-pronounced grades of development before the larva attains maturity, yet it steps into its new circumstances without hesitation or embarrassment. The old organs and the old habits make their exit together to make way for the new. After it has crawled out of the water, where its home has been for two years, the only two thus far of its existence, and its skin cracks open down its back, it lifts itself on its wings as familiarly as if it had been an insect always and was escaping now only from some temporary confinement.

And the same is true of all those animals which pass through one or more moults before becoming perfected.

But controverting this view there is the fact that this correlation extends also to environment, and there is the further fact that there are species which, though having like organizations and surroundings, possess instincts noticeably different. The younger Huber* tells us that the brown, ash-colored, fallow, mining, sanguine, fuliginous, and yellow ants have the same exterior organs, use similar means for building their dwellings, and resemble each other in figure, yet in their instincts are wide apart, evidencing that physical structure does not determine the peculiarities of instinct. Yet this difference does not preclude perfect correlation between the organs and the instincts of these species. The same may be predicated of spiders. They all possess the same web-spinning apparatus, the same organs generally. Yet one will spin a snare, another an anchor-cable, another a diving-bell, another a balloon, and still another a tapestry-hung palace. Even the snares are not all constructed on the same principle, for there is one variety of geometrical spider, which, differing from its companions, spins a triangular web, so arranged that it can, by seizing a certain single thread, draw the entire structure to any desired tension. This it does, and then, after patiently waiting in its concealed watch-house till a fly carelessly alights, lets go its hold, and thus springs the meshes about its victim. I remember having my attention arrested one morning by a most gorgeous spider of gigantic size, its

* On Ants, p. 49.

body having a bright metallic lustre. Its web, however, differed in no respect, except in size, from that spun by the little, gray, extremely ordinary-looking individual which, the same morning, had chosen the corner of my study for its hunting-ground.

These and kindred facts convince me that there is no warrant in nature for concluding that in each act of instinct God exercises direct volition, or that instinct has its origin in some peculiarity of bodily structure. This alone seems revealed, that between the organs, the environment, and the implanted impulse there has been established a profound correlation.

It is impossible to account for all the acts of animals by this organic impulse of instinct. It has its limitations, like every other force. There are daily recurring emergencies which it seems inadequate to meet, and so it has been created with possibilities of modification; and there also have been given it as auxiliaries, first, the senses, which sometimes are marvellously developed; and second, the rudiments of all intellectual faculties, not excepting, as I shall endeavor to show, reason itself.

The fact that the action of instinct can in any way be modified may, at first, appear as against the theory that instinct is an organic impulse; but experiment has proved that even those impulses clearly organic, those that affect the appearance and determine the habits of animals and plants, can be more or less modified by the hand of man, or even by a change in the surroundings effected by natural causes. Ivy planted against a wall or tree supports itself by radicles, yet* when reared as a stand-

* Bridgewater Treatise, vol. xi. p. 248.

ard it has been observed to send forth none. The florist, the fruit-grower, and the stock-raiser have amassed fortunes on these artificially produced modifications; and Darwin, Huxley, Wallace, and other experimenters and investigators have confidently founded a theory of creation upon the modifications which they have discovered or effected in the modes of working of those unquestionably organic forces that build up plant and animal organisms. Though seriously questioning the soundness of their conclusions, we can but grant their statements of fact.

If such modifications are possible among confessed organic forces, it should not surprise us that we meet them in instinct. Some birds,* to avoid snakes, wholly change their mode of building, hanging their nests to the ends of branches and making the exit from beneath. Ants in Siam do not construct their nests on the ground, but in trees, that country being much subject to inundations. Dogs which the Spaniards left in the island of Juan Fernandez were found to have lost the habit of barking when Juan and D'Ulloa visited that famous spot in their journeyings in South America. Dogs in Guinea only howl, and those taken there from Europe become like them after three or four generations. Hens ushered into life in the chicken-hatching ovens of Paris are said to lose the instinct of incubation.

Instincts which have become either injurious or useless through changed circumstances have not only been modified or lost, but have been supplemented by habits which after a lapse of time have borne to them a re-

* Brougham's Works, vol. vi. p. 263.

semblance so close that they have been erroneously placed in the same category. The mistake has happened in this way. Certain acts, at first done consciously and with definite design, after a while become unconscious and automatic, changing in some instances the bodily structure. They have even been transmitted to offspring. But it is utterly impossible for instincts proper to have any such origin, as I have already shown. Failing to note this vital distinction, Darwin has attempted to draw the conclusion, from some instances of habits having thus been changed into pseudo-instincts and carried down from one generation to another, that such must be the nature and origin of all impulses that are instinctive. The skill acquired by dogs in hunting is known to be inherited by their pups, so that South American dogs will, the first time they are taken to the chase, hunt in line, while those from other lands will rush on singly and be destroyed. Here are knowledge and skill, first acquired through experience, appearing in subsequent generations as apparently instinctive perceptions and impulses. It will be found that many of the acts of animals which are supposed to be prompted by instinct are really and only confirmed habits.

Instinct is also, as we have remarked, associated with the bodily senses developed often to marvellous acuteness, and associated so intimately with them that its work and theirs have frequently been confounded. It is by the odor of the carrion-plant that the flesh-fly is so fatally misled to deposit its eggs in its tissues. The bee is attracted by the scent of the nectar-cups, and it keeps sweet and healthful the air in its hive by enclosing in propolis any offensive foreign substance found

within and too cumbersome to handle. A dog's power of smell so immeasurably transcends our own that we would not believe such subtilty of sense possible were it not demonstrated hourly in our presence.

In the wide contrast between the conduct of bees and that of winged ants on leaving their homes, the important part played by the sense of sight may be noted. All bees, even queens entering upon their marriage-flight, carefully reconnoitre, while, without an instant's hesitation or a single glance backward, ants fly away so far that to retrace their course becomes a practical impossibility. The ants have no thought of return, and hence make no provision for it. They are simply in search of suitable sites for the new colonies nature has appointed them to establish.

The powers of observation of carrier-pigeons and the tenacity of their memories, together with their undying local attachments, at least partially account for their wonderful achievements. Those who have them in training first throw them a few yards from their dovecots, and then a little farther, each time lengthening the distance and changing the direction until the features of the landscape become perfectly familiar and indelibly impressed. Still, this is only a partial explanation, for they will readily find their way back not only after the lapse of years, but even across trackless seas, though their schooling made them acquainted only with the immediate neighborhood of their old home. So, too, the flights of bees can thus be but partially explained. The flowers they are to enter and empty may be nodding in a meadow a mile away. Their eyes, it is true, are suited for long range, and are, no doubt,

brought into full requisition, but when after visiting flower after flower, taking in cargo of pollen or nectar, they rise in circles through the air, they must have some other and surer guide than any known organ of the body, to enable them to dart, as they do, direct as a ray of light over hill-top and river-course and meadow-land to their home again, for it now is to all seeming beyond the range of both their sight and scent. When, however, a bee chances to miss its aim and reaches the wrong hive, it corrects its error only by circling again in the air, showing that acute observation and a tenacious memory are largely concerned in the act.

No doubt it is, sometimes, by aid of the senses that sheep and dogs, when taken long distances from home, find their way back. They prowl over wider areas than we are apt to suppose, and only by learning their full history can we reach any safe conclusion. The sight of the eagle and the scent of the carrion-bird have become proverbial. All the architecture of ant and bee inside hive and hill is wrought in carefully darkened chambers, through the delicate touch of antennæ. Indeed, in all their systematic co-operative work, in their accurate measurement of surfaces and angles, in their mastery of the complicated affairs of their thronging colonies, even in their interchange of thought, as we shall find, they rely largely upon the aid of these restless, sensitive, hair-like processes with which they have been provided.

But as the fact that all animals are endowed with one or more of the five senses, as guides and allies, is universally conceded, no further argument or even statement is required. The real questions at issue are

these: are the senses the elements that go to make up the instinct, or is this a unique faculty, a distinct organic impulse, and are they but its servitors? and, if the latter be true, exactly where do the actions of each commence and terminate? All that is needed here is perhaps a word of caution against attributing to instinct what is really referable to the sometimes preternaturally developed organs of sense.

In the life below our own we find not only instinct and the bodily senses, but the rudiments, at least, of all the mental faculties with which we ourselves have been endowed.

Late one fall in a hive of the elder Huber one of the centre combs, proving too weak for its load, broke, and in its fall lodged against one of its neighbors. But the bees, in which we should least expect conscious intelligence, so thoroughly instinctive are nearly all their acts, promptly propped the suspended fragment with pillars of wax, which they constructed out of unfilled comb, and then fastened it securely above and at the sides. This done, they tore away the under supports, and thus left the avenues of the hive again free. These insects must have noticed that the fragment was insecurely lodged, and, fearing lest it might be jarred or weighed down by themselves before they could tie it, resorted to this precautionary measure. Here must have been deliberative thought, an exercise of some sort of reflective faculty. How else can the incident be explained?

This same acute observer tells us that he has known bees both to discover a mistake and to remedy it. He once placed blocks of wood in a glass hive, in such positions that, if the combs were carried down perpen-

dicularly as commenced, the passages would be left too narrow. The bees not only became aware of this, but actually curved their combs and in consequence changed the form of the cells. Here the God-given, ideal model itself, which we suppose the insect to work out under the spur of blind impulse, the insects themselves change by some conscious act of superior intelligence. Huber glazed roof and floor, and the bees began to build horizontally, and when he again interposed glass they curved the combs to reach the wooden supports at precisely the right distance from the obstructions; thus not only varying their usual rules of architecture, but varying them by concerted action, different workers being busy on different parts requiring different changes in order that the whole might be developed symmetrically.

The younger Huber* states that he one day saw an ash-colored ant constructing one side of an arched building. It was too low to meet the opposite partition. Another worker, chancing near, discovered the mistake, tore down the arch, raised the wall the requisite height, and then built a new arch with the fragments of the old. This author, in the same connection, remarks that the ash-colored ants do not build methodically, but take advantage of whatever they may happen to find on the selected site; varying the size, distribution, number, and shape of the rooms according to circumstances. Whichever one first conceives a feasible plan gives a rough sketch, and its companions help it to complete it. Their abodes are water-tight, several stories high, and have many apartments and connecting galleries.

* On Ants, p. 41.

Huber also informs us* that a female ant, if she is needed at home, is seized by the workers before she can follow out her instinctive impulse to fly away and found a new colony, is stripped of her wings, made prisoner, and placed under close surveillance until her desire to wander ceases. The ants, in this instance, unquestionably shape their actions to meet a new and unforeseen emergency. They deliberately and by concerted action plan to thwart the female in her endeavors to follow her instinctive promptings. They not only break off her wings and place her under close guard, but they seem to go so far as to seek to divert her attention by a thoughtful hospitality and by a formal presentation to her of her spacious palace-home.

Captain King,† in Cook's last voyage, gives a singular instance of sagacity in the use by bears of means, and almost of weapons. The wild deer are far too swift for these lumbering sportsmen. The deer herd in low grounds. Bears track them by scent. When near, they climb some adjoining eminence and from thence roll down pieces of rock; nor do they quit their ambush and pursue until they find that some have been maimed.

Rev. M. Smith, in his "Elements of Mental Science," narrates that a fox was once seen to run down into the water with a lock of wool in his mouth, and then to sink, inch by inch, until only the wool could be seen, and this, on being picked up afterward, was found full of fleas. To have conceived and so successfully to have executed this device for ridding the body of these pests

* On Ants, p. 116.

† Brougham, vol. vi. p. 256

demanding a train of connected reflections on the part of a self-conscious mind. The fox, in some way, must have made the discovery that fleas cannot live under water, and then he must have reflected that as he slowly sank they would take their departure, provided he furnished them some way of escape. He must have gone in search of the wool or other substance, and afterward stepped down into the stream, revolving this plan which with such marked deliberation and conscious forethought he had so happily originated.

By this same author we find given another instance of fox-sagacity. The wily thief was observed in a field playing around a group of pigs as though the larger swine were objects of terror. The fox suddenly caught up a piece of wood, about the size of a pig, and, running toward the fence, jumped through an opening. Then he dropped the wood and returned, seized a pig, and bounded through the self-same place. Did he compare the size of the block with that of a pig, and then make a trial trip, so that he might not fail of escape? or did he design to throw the mother off her guard? In either case he deliberately, consciously planned, exhibiting powers of comparison and judgment.

Lord Brougham, in his "Dialogues," calls attention to the habits of an American bird, called the "nine-killer," which catches grasshoppers and strings them upon the twigs of trees as bait for small birds with which it proposes to supply its larder. This bird may, however, be as unconscious and instinctive in laying its snare as the spider. The same may be true in the case of ants domesticating and milking the aphides, or of

the man-of-war-birds in their life-long robbery of the spoils of more skilled fishermen. But there are enough well-authenticated instances to force upon us the conviction that animals can originate and carry out plans to meet unforeseen emergencies, that are so complicated and so sagacious that we must accord to them self-consciousness, powers of observation, memory, imagination, and judgment. The Duke of Argyll, in his "Primeval Man," claims that man stands radically apart from the lower creations in the fact that he alone is a tool-maker. Had hands been given to the animals, and were they less marvellously endowed with implements of industry or with weapons of war, necessity might, for aught we know, have become with them, as with us, the mother of inventions.

President Bascom, in his "Comparative Psychology," argues against the belief of the lower animals possessing reason, their highest faculty being a memoriter or associative judgment. This is, as he defines it,* but a quasi-judgment, the union of two impressions in consciousness, referable to the simple fact that they have been so united in experience, memory being the basis. Doubtless there have been cited, as proofs of reason, many instances which really indicate no higher faculty than that here designated. An incident cited by Dr. Wilson, a former Bishop of Calcutta, of the conduct of an elephant under most trying circumstances, is, perhaps, a case in point. The elephant had become almost blind. A surgeon had cauterized his eye, causing him to utter a loud cry of pain. He got well.

* Comparative Psychology, p. 198.

Some time afterward, it was thought best to touch the other eye with the nitrate of silver. For a while his keeper thought it would be unsafe to bring the surgeon into his presence, knowing the elephant's memory and fearing his revenge. But, to his utter surprise, the elephant lay down of his own accord, evidently to submit to another operation.

But the conduct of animals under entirely novel circumstances, of which I have given a few examples, the philosophy of President Bascom necessarily fails to explain. And, further, there is to my mind abundant incontrovertible evidence that there exists among the lower animals a rational language, and to this I now invite special attention.

Max Müller, in his "Lectures on Darwin's Philosophy of Language," maintains that though there is in every human language a layer of interjectional, imitative, purely emotional words, the great bulk of men's speech, not excepting that of the lowest barbarians, can be traced to roots which are signs of general concepts; that the origin of these abstract terms marks the beginning of rational intercourse, and that the language of the lower animals is exclusively emotional and imitative,—absolutely no trace of a power of abstraction being found in the language of even the most advanced of catarrhine apes. Interjections and imitative words are, he maintains, the very opposite of roots; one being vague and varying in sound and special in meaning, the other definite in sound but general in meaning; and hence the first could not have developed into the second through the lapse of however protracted a period. Analysis of all given languages

leads us back to roots ; experience gives us interjections and imitative words as the only conceivable beginning of human language. If the two can be united, the problem of its origin is solved. Go back to the beginning of conceptual knowledge. The simplest general concept is dual. We have, for example, a word for *father* and one for *mother* ; to express the concept *parents* we would combine the two. This is actually done. In Sanskrit *pitar* is father and *matar* is mother ; *matapitaren*, parents. But this sort of combination is cumbersome. The faculty of abstraction has helped us out. As long as sheep, for instance, are alluded to as sheep, or cows as cows, *baa* and *moo* will answer, or, if they are alluded to as combined, then *baa-moo* ; but when more animals are included, or when all, an abstraction, a compromise of sound, is needed. This phonetic process, this friction or dis-specialization of imitative sounds, Müller claims, runs exactly parallel with the process of generalization of our impressions, and through this process alone are we able to understand how, after a long struggle, the uncertain phonetic imitations of special impressions become the definite phonetic representations of general concepts. This eminent linguist maintains that in the formation of these roots there was called into play a generalizing power peculiar to man, that right here the languages of the lower animals and of man diverge.

It is no doubt true that there has never yet been discovered outside the human race any articulate speech,—the employment of any series of conventional sounds distinguishable by us, for the communication of rational ideas ; but does this fact offer sufficient foundation for

the belief that rational thought does not exist, or that the lower animals are left wholly unprovided with adequate means for its expression? It does seem strange that, having organs of articulation and living with man for so many thousands of years, they have not in a single instance made the least advance toward communicating with him. But words are not the only avenue of rational thought. The congenital mute possesses general concepts, and expresses them through other channels. Infants understand articulate speech long before they attempt to use it; and how often do we meet with accounts of intelligent dogs and horses which have given clear evidence of understanding the wholly unimpassioned language of their masters! The fact that the lower animals make no attempt to use their organs of articulation for the conveyance of thought is, therefore, by no means fatal to a belief in their possessing reason. Lord Brougham expresses the opinion that when the bird, dog, or horse is taught by tone of voice or gesture to do certain things, it abstracts, connecting the sign with the thing signified. The fear of disobeying or the incentive to obedience is the motive. This does not give him the means of connecting the act with the sign; the sign is as purely arbitrary in this case as in human language. There have come to light some most marvellous facts, that strongly suggest not only that they have rational ideas, but that they have ways, yet unknown to science, of communicating them to each other. The sacred beetle,* after having deposited its egg, as is its wont, in a ball of refuse, rolls it about in

* Duncan's "Transformation of Insects," p. 280.

search of some fit place to bury it. In its strange journey it now and then meets an obstacle it is unable to master. Having exhausted its own ingenuity and strength, by no means inconsiderable, it leaves the ball, seemingly in discouragement, as having abandoned the enterprise. But, instead of that, after a little, back it comes with one or more helping comrades. The right spot being finally reached through their assistance, the beetle digs a hole, rolls in the ball, and covers it. Must not this insect, after discovering its inability single-handed to effect its purpose, not only have deliberately thought out this plan of relief, but afterward have rationally talked it over with its fellows? • Must they not have intelligently listened to the recital and, to a certain extent at least, have reflected as to the nature of their reply? The act of depositing the egg must have been instinctive, for the beetle could not have known that heat was necessary to hatch it and that the ball's decomposition would produce that heat. But the insect's blind impulse is afterward supplemented by conscious reasoning to meet an unforeseen emergency, and rational thought is, as we have every reason to believe, interchanged through some channel yet undiscovered.

There is a singular story told by Dupont de Nemours in Autun's "*Animaux Célèbres*,"* of an occurrence which he says he himself witnessed. A swallow had slipped his foot into the noose of a cord attached to a spout in the college *Des Quatre Nations*, at Paris, and by endeavoring to escape had but tightened the

* Brougham, vol. vi. p. 262.

knot. Its strength exhausted, it uttered piteous cries, which called about it a vast flock of other swallows from the large basin between the Tuileries and Pont Neuf. After crowding around and for a while apparently consulting how best to proceed, one of the number darted out and struck the string with its beak; another followed, and then another, in quick succession, each aiming at the same spot, the entire company thus, for a space of thirty minutes, forming themselves into the rim of a whirling wheel, until, by their joint efforts, they finally cut the cord. Though now there was nothing further that they could do, they seemed very loath to disperse, hovering about till nightfall. A marked change, however, seemed to come over the spirit of the assembly. Instead of that anxious, agitated tumult of voices at the first, Nemours thought he recognized a contented, happy chatter, suggesting an interchange of congratulations over their truly remarkable exploit.

Herds of wild horses, flocks of pigeons and geese, communities of beavers, swarms of bees, colonies of ants, all appoint sentinels and have concerted signals. Wild horses have been observed even to take their turn on guard,—an act hardly possible unless by some rational intercourse they have mutually agreed to such stated relief. Bees and ants are especially noted for their division of labor. Among the first, besides the patrol of watchmen, there are foragers, wax-workers, nurses, scavengers, and fanners. The fanners, about twenty in a company, form a line along some thoroughfare in the hive, fasten themselves by their feet to the floor, and for a half-hour vibrate their wings with great vigor and constancy. When they become fatigued,

others take their places. By this most unique method, ventilation, so essential to the life of the swarm, is maintained.

Réaumur informs us that when a forager, whose duty it is to scour the fields, meets any hungry comrade who has not had time to leave home, it stretches out its trunk so that the opening to its honey-stomach extends a little beyond its mandibles, and the proffered food is promptly accepted. If the forager has not thus been met, it often makes a tour of the hive, offering a lunch to bees it finds busily polishing and bordering the cells, and thereby enabling them to continue their work without interruption. This same courtesy has been observed among ants. We learn from Huber* that if a new queen is introduced into a hive, after an interregnum of twenty-four hours, there is a general buzzing announcing the arrival. There is assigned to her a train of picked attendants, who draw up in line on her passing by, caress her with the tips of their antennæ, and offer her honey. When a swarm is ready to move, delegates are selected and sent out to find a suitable site for the new colony. Sometimes two swarms coalesce, and then fly in an almost direct line to their new home, showing that the report of the scouts has been intelligently rendered and adopted.

A saucer† of syrup was once placed in a recess, and a bee conveyed to it. It remained there five or six minutes, and then flew back home. In about a quarter

* On Bees, p. 107.

† Sir Benjamin C. Brodie's "Psychological Inquiries," p. 189; who quotes from M. Dujardin's "*Annales des Sciences Naturelles*," tome xviii. p. 233.

of an hour, thirty other bees issued from the same hive and regaled themselves from the saucer. Their visits continued as long as the syrup lasted, but the inmates of no other hive in the apiary made their appearance.

The younger Huber* one day took an ants' nest to populate one of the glass bells he had contrived for making observations. One part of the colony he set at liberty, and they established themselves at the foot of a neighboring chestnut-tree. The rest were kept four months in close confinement; but, on being removed into the garden, a few escaped. They, meeting their old comrades, made every demonstration of recognition, gesticulating and caressing with their antennæ and taking each other by the mandibles. Then they all entered the nest at the foot of the tree. Very soon, however, they reappeared, accompanied by many others, to look for those still under the bell. In a few hours the bell was abandoned.

This same painstaking observer† remarks that he often amused himself by dispersing in his chamber fragments of ants' nests. The inmates, instead of following in each other's tracks, as caterpillars, in search of shelter, would diverge on every side. They frequently would encounter each other, for a long time wandering about at random. At last one of the number would find a chink in the floor, leading to some cavity hidden away in the dark, and then returning to its companions would, by touch of antennæ, appear to tell them the good news. It would even accompany some to the hole, and these in their turn would act as

* On Ants, pp. 171-73.

† Ibid., pp. 154-55.

guides. Every time they met, they would stop and strike each other with their antennæ, apparently imparting information as to the route.

Ants of the same species,* having the same form and color, will often be at war. They will be inhabitants of different cities. How do they distinguish between friend and foe? When, through any inadvertence, they chance to make a mistake, they no sooner discover it than they relax their hold and affectionately caress. The affairs of the two republics whose citizens are thus met in battle go forward without either confusion or delay, the same as in times of peace, except that now and then reinforcements will march out of the villages, or prisoners be borne in. In a battle once waged between sanguine and fallow ants, the two parties placed themselves in ambuscade, and soon after commenced the attack. When the sanguines perceived the enemy pouring out upon them in overwhelming numbers, couriers were instantly despatched to bring up the reserves; and it was not long before from the village of the sanguines there issued a considerable army, which flanked the fallows and drove them from the field.

Dupont de Nemours, in his *Memoirs*, relates that to guard his sugar-basin against the ants he placed it in a dish of water. But they soon climbed to the ceiling directly above, and dropped. As the ceiling was high, and there was in the room a strong draught of air, some fell into the water. Their companions running around on the rim of the vessel, not having yet ventured to make the daring leap, tried every way to rescue

* Huber on Ants, p. 193.

the unfortunate adventurers. Clinging to the shore, they stretched out their bodies to the utmost over the water, but to little purpose. At last, growing extremely uneasy at the sight of their friends drowning helplessly, just beyond their reach, a bright thought seemed to strike them. A few were seen to hasten to the ant-hill, and then to reappear, bringing with them a squad of eight powerful, large-framed warriors. These, without the least hesitation, plunged into the lake, swam vigorously to the drowning ants, seized them with their pincers, and brought eleven of them straight to land. They then rolled them in the dust, brushed and rubbed them, and stretched themselves upon them to impart some of their own warmth, and then again rolled and rubbed them. Four fully revived; another, being but partially brought to life, was carried most carefully to the home-hill. The remaining six, though dead, were not abandoned, but affectionately borne back for burial. This seems like a tale of fairy-land, yet Dupont de Nemours testifies that he himself was an eye-witness of the scene, and his account is in consonance with what is narrated by other observers of the exploits of these truly wonderful creatures.

There is no necessity for further multiplying instances under this head. If what I have recounted is true,—and I have taken the precaution to select my incidents from only well-accredited authors,—it seems to me quite impossible to deny that at least some of the animals below us have in some way, to at least a limited extent, interchanged rational thought. The channel of communication is still, and perhaps ever will be, a mys-

tery, and, as we can only note results which to us imply the existence of such interchange, we are liable, it is true, to have our interpretations of scenes which partake largely, almost entirely, of pantomime, colored by our own experiences. Yet while this reflection should place us on our guard and lead us to inquire diligently whether some other interpretation is not possible, when it alone is found adequate to answer the conditions of the problem we ought no longer to hesitate in adopting it as the true solution. But at best we are not warranted in ascribing to even the most advanced of the lower animals anything more than the first faint glimmerings of reason,—just enough of this higher faculty being granted them to meet the demands of exceedingly rare emergencies when even instinct, which generally is so trustworthy and masterful, reaches the limitations of its power.

The next question that confronts us in this inquiry is, do the lower animals possess any moral discernment, do they ever act on principle, do they know what it is to have an approving conscience or to feel the pangs of remorse? This subject is too broad to receive the attention it deserves, and original investigators upon whose care and candor we can rely have gathered for us too few facts to warrant any settled conclusion. However, I am at present strongly inclined to answer in the negative. At all events, the vast majority of the acts of animals, which at first seem to be prompted by either some worthy or unworthy motive, evincing moral character, are on further examination discovered to be solely the results of unconscious, instinctive impulse, to which not the least responsibility attaches. It is only in some

of those rare, exceptional emergencies to which allusion has been made, that the lower animals act consciously and with deliberation. When a lioness endures every manner of privation in care for her cubs, or even exposes herself to most imminent peril in their defence, there is in fact no moral heroism in her devotion, for her conduct is purely instinctive. She is driven to it by a blind impulse which it is absolutely impossible for her to resist. Among all the animals, after a certain set season this maternal love is succeeded by indifference, and in many instances by absolute estrangement and marked antipathy; and this alienation succeeds the love with such regularity that it has come to be regarded as controlled by unchangeable law. With us, but never with them, this instinctive love is followed by a rational one.

When the spider spins its web, or pounces upon the fly struggling in the meshes, when any beast of prey tears the flesh and sucks the life-blood of its victim, it at the first appears to us as heartlessly cruel, as the very epitome of selfishness, as ruthlessly trampling down most sacred rights; but, on second thought, we exculpate it from all blame, for He who gave the weapons of attack gave also the carnivorous instincts. As well blame a bursting volcano that burns and buries a peopled city. Bees show no hard-heartedness when they despatch the drones with their poisoned daggers. They are not justly open to the charge of traitorous conspiracy when they without ceremony strike down a useless queen to whom they have, their lives through, apparently paid the highest honors. It would be a different matter if British subjects, or even if British officials,

should thus summarily despatch their sovereign because she had outlived her usefulness. It would be equally idle for us to charge a young queen-bee with jealousy whose first act is to stab in their cradles all those helpless royal infants which may some day battle with her for sovereignty.

Dragon-flies* are perhaps the most bloodthirsty creatures known in nature. Their vision is acute, and they fly with amazing rapidity in every direction without being subject to the delay of turning; their mouth is strengthened to the utmost; their stout jaws end in sharp points; their mandibles are provided with keen teeth, and their lower lips are very large, with palps short and thick. Thus armed, they chase and pull down every fly, moth, or butterfly within their reach. They rend and destroy these delicate creatures often from wanton cruelty we should be apt to think, as they make no use of them, just from some demoniacal passion for inflicting torture on the helpless. It would be very natural for us to pronounce upon them our severest maledictions. But such judgment would be world-wide of the truth. They are as innocent as a buzz-saw whose teeth tear the fingers of a careless workman.

Is the cuckoo reprehensible because she lays her eggs, when possible, in the nests of other birds? or are her children, which thus become the nurslings of strangers, prompted by base ingratitude when they crowd out of the nest the offspring of those very ones which have thus kindly befriended them? It is pretty well settled that both are controlled by instinctive promptings,

* Duncan's "*Transformation of Insects*," p. 355.

though the mother has been observed to occasionally build her own nest and rear her own brood. The man-of-war-bird, whose exclusive food is fish, has neither the implement nor the instinct for catching them, and so, perforce, turns freebooter, plundering more expert divers whenever an opportunity offers.

There are some ants with mandibles arched, narrow, and sharp, meant for war, not work. They belong to the species *Polyergus*. They inhabit underground nests, built for them by brown and mining ants, the workers of other colonies, which have been taken captive by them in battle. Huber, in his seventh chapter, gives an extended and very interesting account of an engagement between these tribes, which he himself witnessed near Geneva, in 1804. His attention, he tells us, was first arrested by a great mass of large, russet-colored ants crossing the road. They marched rapidly, in a solid column eight to ten feet long by three to four inches broad. They soon came near a nest of blackish-colored ants. The several sentinels stationed about the door no sooner saw the approaching army than they spread the alarm and boldly dashed upon the front of the column. A crowd came rushing out from the enclosure. The invaders quickened their pace, pushed back their assailants, and clambered up the sides of the dome. Some forced a passage along the widest avenues; others, with their mandibles, made a breach in the walls. Through this opening the main army then poured in, and the inhabitants of the city at once fell an easy prey to the pillagers. In three or four minutes the victors issued forth in great haste, each one holding between its mandibles a larva or nymph, which it bore in triumph

to the home-hill. The children thus stolen grow up, we are told, into serfs, and are assigned the household cares and labors of their captors. Here is an organized and thoroughly-armed band of robbers, who positively refuse to do a stroke of work themselves, but make it their life-profession to invade the firesides of the weak and kidnap their helpless infants, in order that they may have drudges and slaves to build and nurse and forage for them while they idle and fight. Have we presented us in the life-habits of these insects an actual counterpart of that barbarous African slave-trade and system of Southern servitude that once brought us under the Divine displeasure, that cost us our good name and nearly our national life? or are these little creatures only blindly obeying impulses they have no power to resist? Is the responsibility upon them, or upon Him out of whose armory they received their weapons, and in whose academy they were trained for fight?

Verreaux states* that a custom prevails among ants belonging to an Austrian genus called *Thynus*, in which the males have long bodies with wings and straight antennæ, and the females short ones without wings and with twisted antennæ, for the male to carry the female about with him in his flights, and treat her with chivalric politeness, placing her on flower after flower, that she may sip their nectar. Frequently, however, other males, without mates, chance in the vicinity, and become enamored. At once deadly jealousies are seemingly enkindled, and a fight follows. If the protector perceives himself being gradually over-

* Duncan's "Transformation of Insects," p. 217.

borne, as a last resort, in order that he may disappoint the suitors, he falls upon her ladyship and unceremoniously eats her up.

Ants have frequently been seen carrying tired comrades and feeding hungry ones. They have been seen succoring the wounded and helping them off the field during the progress of an engagement. The sacred beetle, we have remarked, will, upon invitation, assist a comrade, and under such extraordinary circumstances it would seem that it was conscious of the act and actually entertained a benevolent purpose. In most instances in which animals appear conscious of having done wrong, of feeling remorse, their conduct can be traced simply to a remembrance of former correction, and to a fear that it may be repeated. The gentle, loving faithfulness of our old dog Tray it is difficult to believe is as blindly instinctive as the conduct of his wild brother, the wolf, when the latter devours, without sign of compassion, any comrade that, in the chances of the chase, is so unfortunate as to receive a wound. But we may clear our vision somewhat on this most perplexed question if we reflect on our own instincts,—for we are by no means left wholly without such guides. Who has not checked himself in the act of striking the stone which has caused him to stumble? This anger is simply the instinct of self-preservation. It is instantaneous, and for the moment resistless, until after long discipline our reason supplants it. How many persons, of naturally generous temperament, receive praise for acts equally characterless! As well commend a thirsty traveller on some burning desert for lifting a cup of cool water to his lips. In either case

there is a response to the call of only a blind, unreasoning impulse. The evidence of the existence of free choice and of moral motive would appear in resisting the impulse. True, such choice and motive might exist, and they often do, when the act is in the line of the impulse; but we are left absolutely without proof of it until we have examples in which such impulse existed and was withstood. The ant that helped his comrade off the field of battle was, for aught we know, as unthinkingly following an instinct as the wolf that ate up his wounded brother.

The Darwinian school of thinkers have attempted to show that in matter of moral discernment and accountability the difference between man and the lower animals is not radical, but one only of degree. Darwin represents that man* is urged at times by opposing instincts; that he will follow the stronger,—and that if the one that is for the moment stronger leaves on the mind, after its gratification, a less vivid impression than the one denied, then remorse or regret will ensue by the retrospect; but if it leaves one more vivid, then there will be experienced a feeling of satisfaction. This remorse or satisfaction, as the case may be, Darwin defines as conscience; remarking that the migratory birds who leave their fledglings to perish at the north, and join company with the noisy, restless crowd of emigrants for the sunnier clime, would, in common with man, have twinges of conscience at the thought of their deserted little ones, were their memories equally vivid, their maternal and their migratory instincts

* *Descent of Man*, vol. i. p. 87.

urging them oppositely, and the less noble with the greater power. But, we may ask, can nobility be predicated of instinct, if, as he himself allows in the same volume,* the very essence of an instinct is that it is followed independently of reason? Where instincts have the mastery, would it not be cruel in the Creator to make remorse possible? Indeed, in the very nature of things, could it be possible? Are not it and its opposite but the concomitants of the power and privilege of choice?

Herbert Spencer, in a letter to John Stuart Mill, quoted in Bain's "Mental and Moral Science," remarks, "I believe that the experiences of utility, organized and consolidated through all past generations of the human race, have been producing corresponding modifications, which, by continued transmission and accumulation, have become in us faculties of moral intuition, certain emotions responding to right and wrong conduct, which have no apparent basis in the individual experiences of utility." Darwin, Spencer, and Mill, though by no means disciples of the same school of philosophy, are, from the very exigencies of their separate creeds, forced to assert that, in spite of the great present difference between ideas of useful and right, they are in their origin one, being but differentiations of pleasurable and painful sensations. Right, according to them, as Sir George Mivart remarks in his "Genesis of Species," is but the gradual accretion of useful predilections, which, from time to time, have arisen in the minds of a long line of ancestors. In-

* Descent of Man, pp. 95, 96.

heriting a tendency to useful habits, we, as they hold, come at last to consider it innate and independent of all experience. Self-gratification, which was the initial motive, is finally by the power of inherited habit lost sight of, and it comes to be considered true that our perceptions of right and duty are intuitive; in other words, according to utilitarianism supreme self-love becomes at last the noblest self-abnegation.

In the lower animals there are useful acts which resemble moral ones, and Darwin from this argues that we in our moral nature are but developed brutes. Rev. W. W. Roberts has exposed the contradictory position of John Stuart Mill, who was one of the most able of the utilitarians. Mill in his writings, speaking of God, says, "I will call no being good who is not what I mean when I apply that epithet to my fellow-creatures; and, if such a being can sentence me to hell for not so calling him, to hell I will go." Of course he would advise every one to take this same stand. Rather than compromise his moral convictions, he here expresses himself willing not only to forego the joys of heaven, but, if need be, even to endure the hopeless miseries of the damned. In the glow of his nobler intuitions as a man, the cold, hard crystals of his philosophy thus melt like frost-work.

The maxim, "*Fiat justitia, ruat cœlum*," Mivart justly argues could never have come out of utilitarianism. Although the ultimate result of virtue is joy, yet virtue, not joy, is the end sought by the truly virtuous. Moral abhorrence of the impure and wrong, self-sacrificing devotion to the right, cannot grow out of mere notions of utility. Water will not flow higher

than its fountain-head. The real truth is, these intuitions have been forced to stem the tide of utilitarian objections from age to age and have survived despite their influence. If there were no incentive to right action but notions of utility, moral disruption would ensue. Spencer asserts that the fact that exact retribution is meted to all in this life will act as an effectual preventive. In the first place, present retribution is not proved, and, in the second, most men do not believe it, history and biography witnessing pointedly against it. Spencer's model man could only be actuated by the intensest self-love.

If then it be true that the lower animals in their best estate of conscious thought reach no higher than to entertain questions of mere utility, which seems quite probable from the facts thus far brought to light, there exists between them and us in matters of moral discernment and motive and accountability not only a marked but a positively radical difference.

We cannot properly conclude our present inquiry without at least calling attention to a further and, if possible, a still more difficult question than any we have yet considered. It is this: Have the lower animals any share with us in immortality? It might be urged that the very fact that some of them, at least, have to a certain extent reached a state of self-consciousness, and had dawned upon them, however faintly, the light of reason, furnishes presumptive evidence that they have actually stepped upon the threshold of an endless life. The majority of Christian thinkers regard the Bible as disfavoring this theory. But the proof-texts usually quoted in this connection have, I think, been

clearly shown* to be wholly irrelevant. There are, however, considerations drawn from the peculiar nature of the Mental Life below the Human, which incline me to the belief that there is in it no promise of perpetuity. The most conclusive arguments upon which we base our own hopes of immortality, outside the Divine revelation, are drawn from certain mental traits we possess, which are in pointed contrast to those with which the lower animals have been endowed. With them instinct is supreme; with us, reason; and as widely as these endowments differ, so do our experiences, our purposes, and our prospects. They are born experts. They have no incentive to growth, having no necessity for it; they consequently make no progress, and desire none. They have, it is true, a certain amount of curiosity, but none which leads to true mental development. In a certain sense, it may be said, they make slight improvement. The cat teaches her kittens to hunt; ants join in mock battle; lions practise leaping; birds slightly improve their nests. Instincts are susceptible of some modifications, and on rare occasions and under the pressure of extraordinary emergencies have, as I believe, been supplemented even by reason. But this higher faculty, thus vouchsafed for present maintenance, disappears the moment the pressure is removed and instinct reasserts its sovereignty. During the four thousand years of our acquaintance with their history, they have remained substantially stationary. They have no ambition, and seemingly no faculty for advancement. Any impetus given them by man proves

* Vide Rev. J. G. Wood's "Man and Beast," opening chapter.

temporary, they, under a law of atavism, dropping back again to the old level when man's hand is removed. They are admirably equipped for this life, but for this alone. Instinct's sole mission is to care for the body, and instinct is the dominant form of their mentality, their reason, what little they have, being simply instinct's assistant, charged as it is with this specific trust. There is thus, so far as we can discover, no ulterior purpose than to conserve the body of the individual and to perpetuate the species. We can detect in them no unsatisfied longings. Their mental horizon seems bounded by the Now and the Near. We do not know of their making any preparation for another existence, of their sacrificing anything for principle, of their jeopardizing the interests of the life they now have, as though they regarded it as secondary and transitory, or of their thoughts ever reaching beyond the present to a wider, grander destiny.

Although it is extremely difficult, as we have seen, if not impossible, to draw sharply the dividing-line between the mineral and the vegetable, between the vegetable and the lower animal, and between the lower animal and man, yet no one can rise from a careful examination of their prominent characteristics without carrying with him a profound conviction that each marks not only an important but a radical departure in creation. This series of changes is an ascending one, constituting four successive steps in the evolution of a Divine Ideal.

The chemical forces are unalterably conditioned. Here is the reign of absolutism, of mathematical for-

mulas, of fixed fate. Their energizings are marked by the utter absence of choice. In the vegetable forces we note the first faint dawn of a day of liberty. The species are slightly modified by climatic influences, by differences in soil, moisture, or sunlight, and by cross-breeding: so that varieties have been multiplied and improved by both natural and artificial changes in their environment, though these modifications have proved extremely circumscribed and unstable. Some types of vegetable life, as the carnivorous sundew family, even give out strange prophecies of the coming of still higher forms of force. In the lower animals appear self-consciousness, free locomotion, and the instinctive impulse, supplemented by memory, imagination, comparison, the emotions, even rational thought; and so closely do these creatures border on responsible free-will that we are left somewhat in doubt whether they are not accountable and destined to share with us in an immortal life.

While in man there appear all these lower forms of force, the chemical, the vegetable, and the animal, in him alone we find the clear light of reason, the power of moral discernment, full freedom of choice, a vivid sense of accountability, and the promise of an endless growth. Though in vast numbers of the human race the Divine Ideal has not been attained, yet in all it is certainly attainable. The progress of the ages is hopefully toward the breaking of every fetter, and the final development, in Christ-born sons of God, of a perfected Individuality, through the largest Liberty under Law.

WHEN DID THE HUMAN RACE BEGIN?

IN Devonshire, overhanging the little harbor of Brixham, where the Prince of Orange first stepped upon British soil, a limestone hill lifts its head a hundred feet above the level of the sea. From the earliest historic times it has thus been standing alone in the midst of fertile valleys, and not a single vague tradition has floated down to us from forgotten centuries to tell of any essential change in the features of the landscape. But in 1858 the hand of some accident broke through the crust of one of its steep cliffs near its summit and laid bare what afterward proved a suite of long narrow caverns. Their contents, before they were disturbed by unskilled fingers, were systematically explored by a committee of geologists appointed by the Royal Society, and every detail of their wonderful revelations carefully noted. After clearing away the loose *débris* that choked the passages, they came first upon a firm flooring of stalagmite, then a deposit of reddish loam, and last a bed of clear gravel. Pebbles of hematite with worn surfaces were scattered through the gravel, with their long axes in every instance parallel with the sides of the caverns, and on a line with north-and-south outlets, discovered as the work progressed. The loam abounded

in bones of mammoths, rhinoceri, cave-bears, hyenas, lions, reindeer, and other extinct mammalia, occupying positions similar to the oblong pebbles beneath them. Here and there in the same deposit, generally more deeply embedded than the bones, nearly a score of flint knives were found lying. One of these almost touched the hind leg of a cave-bear, not a bone of which was wanting or misplaced. The stalagmite above held the humerus of a bear and the antler of a reindeer. Across the valleys, hematite and limestone were found in quarry. The elements had decomposed the surfaces of the lime into the same kind of reddish loam that had been deposited in the hollows of the hill.

These subterranean passages, now ninety feet above the sea, and over sixty above the adjacent plains, the nature of whose contents has been placed by the precautions of science beyond the reach of controversy, we may safely affirm were once the bed of a powerful and turbid river, whose waters, checked in their flow by their tortuous windings among the clefts in the rock, were forced to throw down the plunder with which they had laden themselves in their marauding course through the country. The rounded condition of the north-and-south entrances, the worn sides of the pebbles, and the direction in which they and the bones were alike lying, together with the fact that stalagmite crusted the bone-earth of none but those galleries that were in a measure removed from the main channel and not subject to inundation except in times of freshet, are, every one of them, unmistakable footprints of running water. That the animals and the men whose bones and whose flint knives were indiscriminately dis-

tributed through the caves must have been contemporaries, that these, their remains, were not the heterogeneous washings of sundry deposits of widely differing dates, the leg of the bear and the antler of the reindeer, it is claimed, furnish convincing proof.

During the last hundred years, five boats, one of them containing marine shells, have been dug out of the estuarine silt below the soil on which Glasgow stands, and within its very precincts. They were evidently shipwrecked at a time when the site of the city was part of the bed of the sea. Under the streets of London, whose authentic history dates back full nineteen centuries, there lies a deposit of gravel of broken flints, through which have been found, widely distributed, the bones of elephants and of hippopotami, together with the rude stone implements of men. Geologists are satisfied that this is a river-drift; yet the valley washed by the Thames to-day sinks full forty feet below. Two miles from Bedford, flint tools, elephant teeth, and fresh-water shells were found resting on solid beds of oölitic limestone, covered by thirteen feet of undisturbed stratified gravel and sand.

The continent has also yielded to the industrious researches of science a plentiful harvest of human relics of great antiquity. The Danish peat-mosses rest on northern drift and vary from ten to thirty feet in thickness. Trunks of Scotch fir lie prostrate in the lowest peat; above them are specimens of the sessile variety of oak; higher still, the pedunculated; over all, the common beech, a tree which has been through the entire historic period, and is to-day, the prevailing forest growth of these regions. There is no record of

the fir ever having been indigenous, and when introduced it invariably languishes. As it was once king of the woods, radical changes must have taken place in the climate to have thus secured its permanent banishment. Since then, at least two other classes of forests have successively skirted the borders of the bogs, and in their turn vacated the soil for a more powerful rival. Flint tools were buried far down in the peat under the firs, swords and shields of bronze lay among the oaks, while implements of iron rarely reached below embedded trunks of the modern beech. Fresh- and salt-water shells and the bones of mammalia were met with at all depths. None were of extinct species.

The Meuse and its tributaries are bordered by high bluffs of mountain limestone. The mouths of caverns here and there open on their almost perpendicular faces, often two hundred feet above the water-level. Over forty of the chambers to which they lead have been entered by men of science, their hard crusts of stalagmite broken through, and the contents of the breccia, or cemented masses beneath, thoroughly examined. The University of Liège has among the curiosities of its museum a human skull taken from one of them. It was embedded five feet deep, in the same mass with the tooth of a rhinoceros, and the bones of a reindeer and of other mammalia. Near the tooth of a mammoth, almost within touching-distance, the skull of a child was also found, but it proved too fragile to be removed. In another cave, in the same matrix with the remains of a rhinoceros, was a polished needle of bone with an eye pierced through it at the base. In still another, two feet below the stalagmite, three pieces

of a human skull and two perfect lower jaws with teeth were intermingled with bones of bears, elephants, mammoths, and rhinoceri. Stone knives were also frequently met with in like positions. These explorations extended through many years, and brought to light a multitude of facts of similar bearing. Human and brute remains were so indiscriminately mingled in the same cemented masses under the floors of stalagmite that we can but reasonably conclude that they were introduced into the caves by the same agency and at substantially the same time. That the different classes of bones do not widely vary in their age is indicated, some claim, by their bearing no marks about them of having been previously enveloped in any dissimilar matrix, and also by their close resemblance to each other in color and chemical condition. A most striking correspondence has been traced between many of the openings on opposite banks, rendering it highly probable that the old river-channels of which these caverns once formed a part ran at right angles to the modern Meuse and its feeders, and have by them been sundered one by one, as through the centuries the waters cut their courses deeper in the rock. Similarly engulfed rivers still exist. In this very basin St. Hadalin and Vestre sink suddenly from sight, to reappear a mile away, while the torrent near Magnée never again emerges, but gropes its way down to some sunless sea. The valley of the Somme, between Amiens and Abbeville, is a mile wide, and sinks nearly three hundred feet into an extensive table-land of white chalk. It is covered with a growth of peat ten to thirty feet thick. Under the peat is a thin layer of clay; under the clay, gravel;

under the gravel, chalk. The bones embedded in the peat are all of living species, and the shells principally of fresh-water origin. The peat reaches to the coast, indeed passes under the sand dunes and below the sea-level. Frequently the waves of the English Channel, when lashed by the storm, will throw up compact masses of it, enclosing trunks of trees, showing an extensive sinking of the land since the coming of the peat. Ninety feet, more or less, above the surface of the Somme are gravel terraces. As these contain fluviatile shells and abruptly end in isolated patches, they must have been a part of the old river-bed, and have covered the entire face of the valley before it had sunk to its present level. These terraces, on examination, proved to be repositories of hatchets and bones similar to those in the Brixham and other caves, and so placed as to corroborate their report, putting to rest objections urged to the latter, that they were simply deserted dens of wild beasts, used by savages as places of refuge or burial, perhaps thousands of years after they had been abandoned. These relics lay together under twenty feet of gravel, in which there was not a single vertical rent, while the overlying strata of sand and loam were equally undisturbed. Near the bottom of one of the pits there was discovered the leg of a rhinoceros, with every bone in place. An elephant's tooth and a flint tool lay within a foot of each other, the tool under the tooth. Tusks of hippopotami were in the same-aged gravel with knives and hatchets. Remnants of mammoth and reindeer were also widely distributed. Along the valley of the Seine, in the suburbs of Paris, there have been like explorations, accompanied with like results.

In the Aurignac grotto, at the base of the Pyrenees, there were seventeen human skeletons, more or less complete, heaped together on a flooring of made earth, associated with bones of entire limbs of cave-lions, wild boars, bears, and rhinoceri, together with occasional works of ornament and use. A slab of rock closed the entrance. Outside, immediately in front, spread over a considerable area, were eight inches of ashes and cinders, mixed with gnawed bones of nineteen extinct and recent species of mammalia, fragments of heat-colored sandstone, and a large variety of flint knives, hatchets, and projectiles. Many of the bones, those of the rhinoceros among the number, had been split open, evidently by men to secure their marrow for food. There was the bone of a cave-bear picked up, on which the marks of fire were of such a character as to indicate clearly that the bone still possessed its animal matter when thrown upon the coals on the hearth. Loose *débris* from the mountain had completely hidden the relics. It is conjectured, and seemingly with reason, that this place had been chosen as a burial-vault by some primitive people who were accustomed to inter mementos of the chase with the bodies of their dead and to conclude their obsequies with a feast. After they had gone, hyenas probably came and gnawed the refuse bones scattered in the ashes.

In 1819, at a place called Södertelge, a little south of Stockholm, the frame of a rude hut was found under sixty feet of marine deposit. At the time of its discovery it stood above the sea-level. A quantity of charcoal still lay upon a ring of hearth-stones on the floor. Dwarf varieties of brackish-water shells, com-

mon to the Bothnian Gulf, were interspersed through the overlying strata.

The delta of the Tinière, laid bare by an extensive railroad cutting, was found to be composed in part of three layers of vegetable soil, the surface of each of which must, at different periods, have constituted the surface of the land. In the first, five inches thick and lying four feet below the present level, were found Roman relics; in the second, six inches thick and ten feet below, unvarnished pottery and tools of bronze; in the third, seven inches thick and nineteen feet below, rude pottery, charcoal, and human bones. The regularity of this river-accumulation is especially noteworthy, evincing a uniform action of forces. The Danish shell mounds show us that since men fished in the Baltic the sea-water has been so freshened by the upheaval of the floor of the ocean as to dwarf oysters and other mollusks to half their former size.

Ninety-five shafts have been sunk in the mud of the Nile, from which at all depths have been taken out works of human skill. Yet the entire lack of stratification, and the prevailing custom of the inhabitants to surround their structures by high embankments supported by wooden walls which in time fall away through neglect, have together rendered it unsafe to base upon the discoveries there made any theories of human antiquity. It has been reported that in Mississippi and California bones of men have been found in company with those of the mastodon; that in New Orleans they lay beneath four buried cypress forests, and in Florida were deeply embedded in reefs of coral; yet these reports stand in too great need of scientific

confirmation to entitle them to anything more than a passing notice.

Hundreds of earth-works, however, have been discovered lining the banks of the Ohio and its tributaries, which, their size, shape, and contents tell us, were, some of them, temples; some, barricades; some, places of sepulchre. Many have been partially undermined by rivers whose present channels lie a full mile distant. None are found on the lower terraces. The first historic European settlers found these mounds, which when built undoubtedly occupied a cleared country, covered with full-grown forests of that wide variety of trees peculiar to American soil, forests that had been used as hunting-grounds from time immemorial by wild tribes of Indians, among whom not a single tradition existed of this ancient civilized people, who, in some forgotten era, sowed fields, worked in metals, held commercial intercourse with foreign nations, built walled cities, and stately assembled in houses of worship. On some of these mounds trees have been cut down whose trunks displayed eight hundred rings of annual growth.

These facts, every one of which has received the endorsement of writers of acknowledged authority in scientific circles, comprise the leading geological data on which rest the more considerate theories of to-day respecting the antiquity of our race. It is true, there exist wide differences of opinion on this subject, but they are principally the outgrowths of differences in interpretation.

On the question of time-relative, it hardly seems possible for more than one sentiment to prevail. Since man was first introduced upon the planet, radical changes

have been effected in the configuration of continents, the system of natural drainage, the nature of climate, and the character of brute tribes. Rivers that were main arteries of life to extensive districts have disappeared with the herds of mammoth that browsed on their banks. Reindeer and musk-buffaloes have since then been forced out of the temperate zone into higher latitudes, while the only living near relations of the lions, hyenas, elephants, and rhinoceri that men once hunted in European forests have, as far back as there is any record, made their beds in the tangled jungles of the tropics. The present site of Glasgow, understrewn with the boats of shipwrecked fishermen, has been lifted out of the arms of the sea. The Thames has shifted and deeply sunk its channel; hippopotami have perished out of the land, and over their old wallowing-places for many a century have stood Westminster Abbey and the Cathedral of St. Paul. The forces of hidden fires have thrown up near the harbor of Brixham what were once parts of subterraneous river-channels, transforming them into the crests of isolated hills. Powerful streams on the continent have become dry, and their old courses cut in sunder by the more modern Meuse and its tributaries, which, even in their day, have worn their way down one and two hundred feet into mountain limestone. Since that rude hut near Stockholm sheltered its human inhabitants from storms and from the rigors of winter, it has been sunk and the sea suffered to flow over it a length of time sufficient for sixty feet of sediment to settle on its roof, and has then again been lifted above the water's level. All these and many other changes equally marked have occurred within the human period,

yet in a past so remote that even tradition is silent concerning them. Nineteen centuries ago, Denmark attracted the attention of Julius Cæsar by the magnificence of her beech forests. In this same source of wealth she stands peerless to-day. Through such a lengthened lapse of time, neither the character of her trees nor their tropical luxuriance has noticeably changed, yet we possess convincing proofs that oaks preceded the beeches and were once as exclusive monopolists of the soil as they. How long they lasted, or what influences at first introduced or what at last banished them, are matters about which we may conjecture but can never know. Still farther back in the past than even the dynasty of the oaks, forests of firs rooted in the same soil and drank in the sunlight of perhaps as many centuries. And when we have reached the pine woods we have come only upon the close of the Stone Age in Europe, for not a single bone of those extinct species of mammalia, that were the contemporaries of man, has been found among the buried trunks of this remote vegetation. These relics, in fact, carry us no farther back than the thirty feet of peat on the valley of the Somme; yet, long before that, and still within the age of man, this river of France had gathered, with its current, a deposit of twenty feet of gravel, and afterward had cut its way down ninety feet into a bed of chalk.

When we attempt, however, to solve the problem of time-absolute, we encounter seemingly insuperable obstacles on the very threshold of the inquiry. It would be exceedingly hazardous for us, in constructing our chronological tables, to assume that any one of these

mentioned changes has been effected through some slow and uniform method, or that the different processes have been separated by long intervals of quiet. The intensity with which natural forces have worked in the past has evidently widely varied. Even if in some localities peat can be shown to have been a gradual accumulation of decayed grasses and leaves, there are also authentic instances of swamp-bogs suddenly bursting and inundating large tracts of land with their black contents. On our western coast, mud-volcanoes are seen to-day in full activity. But aside from all this, not only in different countries, but in different ages in the same country, there may have existed decided differences, if not actual contrasts, in the humidity of the atmosphere, the length of the growing season, and the character of plant-life. Yet without these data, which it seems quite impossible to obtain, our time-estimates can be little better than loose conjectures. So, too, the known period the beeches have occupied Danish soil really furnishes no reliable unit with which to measure the age of the oak and fir forests that preceded them; for the conditions of growth may have materially altered since then, and each burial, for aught we know, may have been the brief work of a single hour. We have the testimony of President Harrison that the great variety displayed in the trees growing above the Ohio mounds is a sure sign of great antiquity, but as to how great, even he, with his extensive experience as a backwoodsman, thought it unwise to venture an opinion.

Again, rivers have not always been the tame currents we see them to-day. But should we so judge, and on their present wearing-power estimate the centuries con-

sumed by them in shifting their channels over such remarkable distances and sinking them, as they have done, hundreds of feet into solid rock, two or three scores would scarce suffice, and they are but late successors to those other streams, broken fragments of whose abandoned beds we have seen to honeycomb isolated hill-tops or to open far up on the faces of perpendicular cliffs. The "boulder clay," geologists unanimously agree, is absolutely free of every relic, brute or human. In no deposit under the clay has the latter ever been found, yet both are abundant down to its very surface. If this fact has any significance, it teaches us that the glaciers had just left the valleys of Europe when man came upon the scene. Melted fields of ice must have recently been turned into turbid torrents sweeping to the sea with a resistless energy, for none less powerful ever could have left behind them beds and deltas of such character as the explorations of science have brought to light; and a change of climate radical enough to unloose the frost-fetters with which a continent had been bound through an unbroken winter of centuries must necessarily have ushered in a scene to which the comparative quiet and order familiar to us were entire strangers. River-washings can, in consequence, furnish no certain clue to the mystery that shrouds the birthtime of our race. Professor Guyot claims that he has ascertained, from astronomical data, that the last drift occurred nine or ten thousand years ago; but his figures yet wait proof.

Some have sought solution in those vast changes of level effected within the human period, changes that terminated the reign of ice, drove the firs and the oaks

from Denmark, stunted the growth of shell-fish in the Baltic, converted ocean-beds into eligible city sites, gave a new water-shed to Europe, and utterly exterminated many of her animal species. But the same difficulties still meet us, for it would be idle to affirm that the thin crust formed over a restless central sea of fire has been lifted and sunk through all past periods with a motion measured as the swinging beats of a pendulum, notwithstanding we are assured that the coasts of Scotland have, since the Roman conquest, risen twenty-seven feet, with a steady slowness wellnigh imperceptible, or that at this very hour the coasts of Nova Scotia are sinking just as gently into the arms of the sea. Earthquake and volcano stand grim witnesses against the soundness of any such conclusion.

Some have hoped for an answer in the fact that since the Stone Age an entire group of quadrupeds has become extinct. Etchings on ivory, found in river-silt, of a hairy mammoth, the fur-coated carcasses of elephants and rhinoceri washed out of the frozen mud of Siberia within the last hundred years, and the presence of reindeer and musk-buffalo bones in the caves of Brixham and Liège and in the gravel terraces of the Somme, suggest that these strange species were of an arctic nature and melted away with the glaciers and icebergs of the drift. But further definiteness it is folly to attempt. In New York in 1845 a mastodon's skeleton was found possessing a remarkably fresh appearance. Within it was a quantity of half-chewed twigs in a state of perfect preservation, the animal having evidently mired in the bog on which he was last feeding. Three feet of peat lay above him, a work

of but three or four thousand years on the largest estimate. Jefferson, in his "Notes on Virginia," informs us that he found traditions of the mastodon still existing among North American Indians. When, in connection with these facts, we bear in mind that all of these extinct species, whose bones are scattered through the caves and outer river-drifts of Europe, were post-pliocene and comprised but about a tenth of the entire number, we feel that we have here left us a very large liberty of belief. It is possible that we may be looking into the sepulchre of a hundred centuries; it is also possible that these relics carry us no farther back than fifty.

Lastly, if it could be as satisfactorily proved as it is confidently asserted in certain quarters that human implements were first fashioned from stone, that bronze succeeded the stone and iron the bronze, and that each advance in the arts was taken at substantially the same time the world over, it would then perhaps be within the reach of present geological knowledge to count at least the millenniums that the earth has been the home of the human family. But even in this day of needle-guns and Henry rifles the Australian lives on game killed with stone weapons strangely resembling those dug from the gravel-pits at Amiens and Abbeville; and a hundred years have scarcely passed away since powder and ball usurped the place of the Indian's flint hatchet and arrow-head. In the early ages, as wide contrasts as these may have marked the condition of people separated simply by a lake, a wood, or a mountain-range; for frequent and familiar intercourse among nations, a thing unthought of then, is the principal and almost only equalizer in the world's life.

We turn to archæology. The records of its discoveries are full of the marvellous. They startle and fascinate like the bold creations of Oriental romance. A rapid review of a few of its leading facts must, however, at present suffice.

A stranger travelling in the south of England would imagine, as he casts his eye over Salisbury Plain, that he saw a flock of sheep quietly feeding in a distant meadow ; but, on nearer approach, those "gray wethers," as they have been called, turn into monstrous blocks of stone, one hundred and forty in number, weighing from twelve to seventy tons, and arranged in two widely-sweeping circles. It is claimed that they were lying there, thus scattered and storm-beaten, nineteen centuries ago, when Julius Cæsar landed his legions on the coast, as much of a mystery then as now. On some of them, sharp angles, mortises, and tenons can still be traced. It is generally conceded that these are relics of a vast temple. At Abury are still older ruins of a far more imposing edifice. Indeed, twenty-eight acres are believed to have been covered by it when in its completed state. Diligent search has been made, and made in vain, for the lost quarries which those primeval builders selected with a wisdom and worked with a skill that not only challenge our admiration but excite our wonder. How those immense rocks were blasted from their beds, dressed into shape, transported over the country, and finally lifted into their places on the wall, baffles conjecture. There are evidences that the roof of the temple was conical and rested on central supports, its architecture widely differing from anything Greek or Roman. Similar stone circles have

been traced across the entire continent, even into the very heart of India. In the secluded regions of Abyssinia this style continues in use at the present day. It is held that the temple of Dagon, at Gaza, against whose middle pillars blind Samson leaned in his last feat of strength, over eleven hundred years before the Christian era, was constructed mainly on the principle of a Gothic chapter-house.

There have also been discovered, in the near neighborhood of these Druidic circles, very mysterious stone sepulchres, consisting of four rough slabs, three vertical, the fourth horizontal and resting upon them. The skeletons within were uniformly in a kneeling posture, a custom unknown to any of the monotheistic races. No regard seems to have been paid to the points of the compass. The graves of Jews, we know, are directed toward Jerusalem, of the Mohammedans toward Mecca, and of the Christians toward the sunrising. The mounds of earth that originally covered them, frosts and storms have long since torn away. This people, in so securely and reverently burying their dead, have, in most touching terms, told us of their firm faith in the other life. These "cromlechs" can also be traced, as can the stone circles, back to the very banks of the Euphrates.

In the presence of such facts, the question forces itself upon us, Was the time, twenty-three and a half centuries, usually estimated to have elapsed between the Flood and the Roman invasion, long enough for a single family to have so multiplied as to have compelled the East, burdened with its teeming millions, to drive out swarm after swarm until far-off Britain throbs with its life,—then this new life to grow up into

so compact a people and to develop such civilized social wants and sources of wealth as to turn Britain's best quarries of stone into temples of worship,—then, after all that, to waste away into such complete extinction in a past so remote that even at Cæsar's coming not a living soul, not a vague tradition afloat among the barbarous Celts, not even a single name, nothing but a few weather-beaten blocks of stone, is left to tell the story of their stay?

We have already alluded to a race of mound-builders that overspread the central portions of North America in some unknown era. They occupied the region lying between the Alleghanies, the Rocky Mountains, the Great Lakes, and the Gulf. The ruins of their works exist in immense number. Twelve thousand have been counted in Ohio alone. Some of them form walls of defence four times as high as a man, and miles in length. They are strengthened and rendered serviceable by every manner of military device. Others constitute extensive enclosures of various and most exact geometric figures, containing earth-images of birds and beasts of prey, or vast truncated pyramids designed for purposes of sacrifice or of burial. From one of the latter, near Newark, Ohio, fifteen hundred wagon-loads of stones have been taken. The styles of the mounds vary in different localities. In the region of Ohio, squares and circles prevail; of Wisconsin, animal forms; and of Tennessee, parallelograms. In the States about the Gulf, terraced pyramids, artificial lakes, and imposing avenues meet the eye. In Missouri and Arkansas, their nature and position clearly indicate the abandoned sites of towns and cities. These mounds, by

their great number, their wide distribution, their magnitude, their peculiar character, and the highly-wrought relics of ornament and use they have been found to contain, unmistakably point to dense masses of people, extensive agricultural enterprises, settled forms of government, and a most remarkable advance in the arts and sciences. As we have previously stated, the fact that forests are growing above them, possessing such a variety of trees, and trees of such great age that unless closely scrutinized they would be pronounced primeval,—the fact, too, that the skeletons they contain dissolve at once into dust at the touch, while some found in Europe, sepulchred in earth far less dry and compact, have proved sound even after a burial known to have exceeded two thousand years,—and the further fact that, without exception, they avoid the present lower river-terraces, and in many instances have been undermined by streams whose beds now lie a mile away, impress us with the belief that many thousands of years must have elapsed since this immense tidal wave of human life swept over the American continent. But these earth-works, scattered so extensively, constitute but a small part of the ruins found here of former civilizations. Ancient mining-shafts have been uncovered in the Lake Superior country. A half-ton mass of pure copper, disengaged from the rock by fire and mounted on skids, has been found under fifteen feet of soil on which stands a forest whose trees show the growth-marks of centuries. The pueblos of New Mexico and vicinity, whose walls of brightly-colored pebbles, sandwiched between slabs of gray sandstone, appear from a distance like brilliant mosaic, are im-

mense three- and four-story structures, under some single one of whose extensive roofs the inhabitants of an entire village could find convenient shelter. In the caves and fissures that open far up the faces of the cañons of Arizona and Colorado modern governmental surveys have also brought to light ruined fortresses whose solid masonry once formed the bulwarks of an empire of cliff-dwellers that flourished in some forgotten era. These ruins occupy deserted districts. Some assert that their history is wholly lost; others, that they mark the site of that Aztlán of the North mysteriously alluded to as an ancient fatherland in the traditions of the Aztecs. The more cautious, and undoubtedly more correct, maintain that they were built by the ancestors of those strange, half-civilized Indians still occupying that territory. Whence or when they came none know.

Cortez did well to dismantle his ships and burn them behind him at the opening of his famed campaign, for his followers were soon to see sights suited to cause the bravest of them to draw back with terror. He had not been long upon the march, when suddenly across his path rose up six miles of solid masonry, twenty feet thick and nine feet high, flanked by mountains and broken only by a narrow gateway guarded by fierce Tlascalans. But by valor and intrigue they passed the wall and pushed their way to the capital. The glowing accounts they afterward carried back to Europe of the civilization which their mad greed for gold had terminated in blood, though little credited at the time, have since been abundantly confirmed by archæologists. The fields were well tilled. The inhabitants

were clad in cloth. Water was carried in aqueducts of hewn stone that spanned chasms and wound about the bases of the hills. The Mexican metropolis, reached only by artificial causeways, seemed afloat in the lake, upheld by some spell of enchantment. Its streets were lined with canals, and the canals were alive with barges. Pyramidal god-houses appeared with strange frequency among its stone business-blocks and private residences, their terraced sides ornamented by skilled sculptors with hieroglyphics and bas-reliefs, and their towering summits crowned with altar-fires that flared like meteors through the night down its empty avenues. Forty thousand pyramids are estimated to have been standing at this time within the bounds of the empire, twelve thousand within the precincts of the capital. Of these, the one with the most attractive surroundings was perhaps the Temple of Mexitli, a structure of vast proportions, standing in a square paved with polished stone and enclosed by a wall covered with sculptured serpents. About it clustered forty smaller temples, interspersed with gardens, fountains, ponds, and priest-houses, with room remaining for ten thousand people to assemble inside the gates at times of religious festival. That of Cholula is perhaps the largest still standing. It boasts a much broader base than any in Egypt, and reaches a height of two hundred feet. Its crest, now dismantled, once supported an altar and an idol. The idol, an image of the Air, held a shield elaborately engraved, and a sceptre set with diamonds. It wore upon its head a plumed mitre, and about its neck and from its ears ornaments of gold and of tortoise-shell. That of Papantla, in the vicinity of Vera Cruz, bears

closest resemblance to the pyramids of Egypt. It is built of massive blocks laid in mortar. It has a square base, and as it rises it presents an outline of rare symmetry. A dense forest has grown up about it since it was abandoned, so that its existence was a secret, known only to the Indians until two centuries since, when some hunters strayed where it was and told the world of it. Greatly as these pyramids astonish us and set us questioning, the aqueducts, the calendar stone, and the bound volumes of "picture-writing" equally excite our wonder. A word on each. The aqueduct of Chapultepec rested on nearly a thousand arches; that of Cempoalla crossed on a bridge half a mile long and over one hundred feet high. The calendar stone was cut from a single block, weighing thirty-three tons in its finished state, and found lying full thirty miles from its native quarry, having been in some unknown way transported over a rough country intersected in many places by natural and artificial water-courses. On its face were displayed in hieroglyphics accurate measurements of time, the signs of the zodiac, the motions of the planets, and a true explanation of the cause of eclipses. The bound manuscripts were of cotton cloth, agave paper, or stag-skins sewed into continuous strips, in some instances seventy feet long and from two to three feet wide, folded together in squares and attached at their ends to thin boards that served as protecting covers. The three styles of hieroglyphics found on Egyptian tombs and temples were all employed on their pages, the representative, the symbolic, and the phonetic, although the first, which is the lowest, was preferred. The last is but a step removed from

the alphabet. There were great quantities of these manuscripts at the time of the Spanish invasion, but the conquerors, in their zeal to extirpate superstition, seized and burnt them wherever found, mistaking them for books of magic. A few escaped. From these and from floating traditions we learn that the Aztecs were comparatively modern occupants of the valley, the Toltecs, a people of far higher culture and wider knowledge of the arts, having preceded them. Of these, a few sparse communities still remained, and it was here the Aztecs acquired what they knew of gardening, the smelting of metals, architecture, astronomy, and picture-writing, although proving but indifferent learners, as appears from the fact that the more imposing of the public works and, judging from what were saved, the more valuable of the public archives found by the Spaniards were of Toltec origin. It is still a puzzle with the antiquaries how so much stone-cutting was accomplished with bronze tools, or how such ponderous masses were mined and moved without gunpowder, machinery, or beasts of burden. Before the Toltecs came the Colhuas, the bearded white men of tradition. Their more southern empire centred about Yucatan. Humboldt seemed inclined to the opinion that they were originally from the East, their ships dropping anchor in the harbors of the New World, in a past antedating even the rise of the Chinese or the Hindoo races of ancient Asia. The stately ruins of over half a hundred of their cities have been found in the heart of the forests. Their history had already passed into tradition, and wellnigh passed out of it, before Cortez landed his forces on the Mexican coast.

Walk down their deserted streets, and far above you, on either side, you will see finely-finished palaces and temples resting upon the tops of immense truncated pyramids, their massive walls in places still standing ninety feet above their high foundations, their façades stretching out two and three hundred feet, elaborately carved with hieroglyphics, whose meanings are yet sealed secrets. Climb the staircases that lead up the sides of the pyramids, enter the open door-ways of those veritable castles in the air, and you will find yourselves within some of the most unique art galleries in the world. Here, rich mouldings and arabesques, wrought into many a quaint device with consummate skill, will meet your eye; there, pictures twenty-five feet wide and from ten to fifteen high, cut into the polished faces of the accurately fitted stones, will introduce you to the battle-fields, the gardens, and the domestic hearths of some mysterious Long Ago. Through Copan and neighboring cities, you will also encounter colossal monoliths twenty and even thirty feet high, scattered in great profusion, having long since fallen from their pedestals in the areas, on the stairs, and about the open courts of the palaces.

Peru as the Spaniards saw it four centuries ago, with its extensive aqueducts, its paved post-roads fifteen hundred miles long, its beautiful hanging gardens that reached far up the terraced slopes of the mountains to the frost-line, the Oriental magnificence of its royal palaces and temples of worship, the pages of Prescott have made familiar to every English reader. Pizarro found the whole country firmly cemented under one of the most complete despotisms known to history. The

Incas were the reigning family. Their real origin they studiously concealed from the people, proudly claiming to be children of the sun, to have come from the South, and to have founded Cuzco by direction of the gods, made known through the miraculous sinking of a golden wedge. Some authors assert that there is evidence that they accurately measured the solar year, knew how to write, and made paper from banana leaves, eighteen hundred years before the Christian era. Others place the commencement of their dynasty at a much later date. Their consummate skill in the art of embalming and their scrupulous care thus to preserve the bodies of their dead, the peculiar inclination they uniformly gave the lintels of their doors, many of the ceremonies of their worship and the customs of their social life, strongly suggest that possibly Egypt may have been their school-master or scholar in some of the forgotten centuries. At the southern extremity of Peru, on the shores of Lake Titicaca, there may be seen to-day an artificial mound one hundred feet high, surrounded by gigantic angular pillars; temples six to twelve hundred feet long, fronting the east with great exactness; vast porticos with pillars cut from single stones, covered with carved symbols; basaltic statues adorned with half-Egyptian bas-reliefs; and palaces built of hewn blocks measuring twenty-one feet by twelve and six feet in thickness. The ruins throughout are of gigantic proportions, and surpass both in grandeur and in finish any of the works of the Incas or even the imposing structures hidden among the forests of Yucatan. All knowledge of the origin of the city had so completely perished out of the memories of the natives, and the ruins were

held by them in such superstitious reverence because of their extreme antiquity, that the politic Incas saw it both possible and profitable to connect themselves with them by what to us is a wholly improbable myth. The opinion now generally prevails that the city was abandoned before the first stone had been laid in the foundations of Palenque, Quiriqua, Uxmal, or Copan.

From these and other kindred facts, which we have not space to detail, it appears that in some long-ago era the entire Western world was densely peopled by civilized races. The many striking resemblances which the colossal ruins of their earth and stone works bear to those found on the sands of Egypt and among the mountains of Hindostan have led Humboldt and many writers since seriously to question whether they were not all fashioned from a common model, the American builders carrying with them to their new home the architectural conceptions and standards of taste that at the time held sway in the old. Against this conclusion it has been urged that the mounds on the Mississippi, the teocallis in Mexico, and the temple-crowned pyramids of Yucatan merely mark a particular stage in religious development; that they are each spontaneous products of the human mind; that nations wholly ignorant of each other's existence and living in widely different eras would, if similarly advanced in religious life, resort to similar architectural expressions of their ideas and aspirations. Mountains, it is claimed, have ever been favorite places of worship; and when they are not easy of access, the inspiration of their presence has become so deeply missed that Art has promptly stepped in with her imitations. The Hindoo pantheon

was on the sacred Mount Meru, many studied transcripts of which were scattered throughout India and called its peaks; the Persian was on Albordj; the Greek, on Olympus; the Scandinavian, on Asgard; while Ararat, Horeb, Sinai, Zion, and Olivet are intimately associated with the Christian's faith. This objection has strength, and perhaps would prove fatal were not the resemblance alluded to but one of many, among which may be mentioned that of sun-worship, with orphic and phallic accompaniments, serpent devices, hieroglyphics, extensive astronomical knowledge, the practice of embalming, styles of dress and of weapons, the offering of hecatombs of human life in honor of distinguished dead, the mode of writing history by ingeniously knotting and braiding about a rope as a base threads of diverse dyes, and also sundry social customs of the people. Humboldt's surmise is further sustained by some quite remarkable traditions. In the Panathenæa, one of the very oldest of the Greek festivals, there is celebrated among other things an Athenian victory over the inhabitants of Atlantis, an island in the Atlantic counted so vast and so powerful as to be looked upon as the crowned queen of the sea. Solon heard a mythical story concerning this same land from the Egyptians while visiting them over twenty-four centuries ago. All connection with it by them, and indeed by the entire East, had, even at that early day, so long since ceased that not only had the fact of its former existence become traditional, but it was thought the waves were then rolling over the place where it had once stood. Plato, who wrote in the fifth century before Christ, also describes Atlantis, and in doing so

has, as De Bourbourg tells us, recorded many peculiar features of the country and the government that are strikingly analogous to those of the empire of Xibalba, to whose stately ruins in Yucatan we have briefly referred. It can hardly be counted a coincidence that Atlantis is spoken of as divided into ten kingdoms, ruled by five couples of twin brothers, who together formed a national tribunal presided over by the eldest two, and that Xibalba was in fact, as has been found, governed by ten kings who reigned in couples under Hun Came and Vukub Came, and who at times also met in grand council. Both were exceedingly fertile, both rich in precious ores, both visited by some widespread calamity, both possessed in common the name of Atlas.

The full significance of these ancient American civilizations will more clearly appear when seen in the light of other facts.

Five miles from Bombay harbor two rock-hills lift their heads out of the waves. The valley between them is heavily wooded, with here and there a rice-field, a meadow, and an Indian hut to tell of human life. Many years ago, when English sailors first visited the island, there was a black stone statue of an elephant, thirteen feet long, standing on the southern shore, and from this circumstance it received the name of Elephanta, by which it is known to us to-day. Clambering half-way up the side of one of the hills, we stand at the entrance of a vast temple cut in the solid rock. Its door-way is sixty feet wide and eighteen high, supported by two massive pillars and two pilasters. Looking within, long lines of columns stretch away into the

darkness before us. The audience-room on measurement proved to be one hundred and twenty-three feet broad, by one hundred and thirty long. Many chambers open from its sides, their walls covered with sculptured mythological symbols. At its farther end is a bust, each of whose three well-shaped heads is sixty feet long. The hand of one of the figures clasps the deadly cobra-de-capello. Various works of the chisel are scattered through the apartment. Similar excavations are met with on other sides of the same hill. We are wonder-struck at the magnitude of the enterprise and the architectural skill of the builders, when we are told that the hill is of clay porphyry, so hard that ordinary steel makes little or no impression on it. These ancient fanes are now all deserted. Who cut them out, or at what time their congregations last broke up, dwellers on the shore are as ignorant as we. The most celebrated of these mysterious caverns are, however, at Ellora, a decayed town in Central India. Here some twenty-two of them are cut into the inner slope of a horseshoe-shaped hill. They are ranged in a circuit a mile and a quarter in length. The largest, called Kailasa, or Paradise, is thought to have represented the court of the god Siva. Inside its door a covered colonnade, adorned with strange statuary, conducts to a chapel supported by two mammoth elephants and by two obelisks sixty feet high. Beyond the chapel a pagoda rises at the centre of the room ninety-five feet from its foundations, guarded on every side by the couchant forms of the fierce beasts of prey that infest the jungles of Hindostan. Farther still, lesser temples, similarly adorned, are scattered through the ample

space. Forty-two colossal idols, each the centre of a group, stand within the central building, forming the Grand Pantheon of India.

It is believed, and with much reason, that these remarkable excavations were made in an age so remote that since their day the Sanskrit language has entered the country and developed into vast proportions, supplanted the old Dravidic tongue in the sanctuary, on the street, and at the home-circle, and finally has died out of the mouths of the common people, to live only in the pages of their literature; that since then Brahmanism has overthrown Siva-worship, has itself been overthrown, after centuries of caste-cruelties, by Buddhism, a form of religious protest that also in its turn, after reigning upward of a thousand years, has been forced to give way before the so-called modern Brahmanism, which, compounded of the three religions that preceded it, has for a period quite as long been the ruling faith of over three hundred million people.

These caverns have been used by different sects at different times, principally the Buddhists, who have cut inscriptions and reliefs on the walls and set up their own idols within them. This circumstance has misled many as to their origin and age. We cannot enter now into the proofs of their extreme antiquity, but there is evidence on record that immediately after the death of Sakhya-Muni, one of the founders of Buddhism, the one who first gave it system and state-standing, his disciples used them as assembling-places, and there compiled the sacred writings of their sect, showing that they existed at the time of, or prior to, the establishment of that form of faith. There is evidence that

they were most numerous in India, far away from the banks of the Ganges where Buddhism had its rise ; that they existed in districts where the people were black and savage and Buddhism was unknown ; that, with but few exceptions, they were consecrated to Siva-worship, the most ancient system of religion in India, from which Hindoo Saivism was born ; and that they must have been built, being works of such stupendous magnitude, before Buddhism became the state religion of Magadha and monopolized governmental resources. Lieutenant-Colonel Sykes, the best authority on the subject, says, "There is not anywhere a rock-temple excavation dedicated to Brahma or Vishnu." Siva was not a Vedic god, is not mentioned in the Rig-Veda, the oldest of the Brahmanical compilations, and belonged undoubtedly to the ante-Sanskrit people of the country. The Indo-Aryans simply incorporated him afterward into their worship because they could thereby strengthen themselves. It was to this Siva that these wonderful monuments of human industry and skill were originally dedicated. Similar constructions Rameses the Great of Egypt found in Nubia thirty-three centuries ago. Their origin was a mystery then. He covered their walls with the records of his conquests.

We see sun- and serpent-worship in the images of Siva clasping in their hands the cobra-de-capello, in the many symbols cut on the walls of the temples, and in the Cyclopean fanes and stone circles scattered in every province.

There is not a country in the East that does not abound in ruins of kindred character ; but we must pass

them by with only a glance at one or two of the more noticeable features of those in Egypt.

Although scores of authors have by their detailed descriptions long since stripped these ruins of almost every vestige of novelty, yet their colossal magnitude, their wonderful displays of power, the vast lapse of time they cover, the bold, grand thoughts and boundless resources of their builders, still gift them with a resistless fascination.

Who of us in his fancies does not frequently look into the tranquil face of that mysterious Sphinx, and dream of those far-off times when in that sand-hidden temple, between its spreading paws, sacrifices were offered by its many willing worshippers? Who does not climb the staircases of the pyramids, and, as his eye falls on that lonely plain, whose empty desolation is relieved only by a few shapeless heaps of stone that mark the long-lost site of Memphis, call back the city's brilliant reign of thirty centuries before Alexandria plucked off its crown, and, in fulfilment of Bible prophecy, left it without inhabitant? Who does not go down with his lighted torch into the hearts of the honeycombed hills, into those wonderful picture palaces cut in the rock, in whose grand saloons, enriched with fresco and relief, depicting scenes in the lives of the sleepers, the embalmed bodies of the dead have been so long waiting in their sarcophagi of alabaster for the souls that went out from them to come again after the cycles of their transmigration are ended? Who does not enter the open portal of the temple of Karnak, revel in the architectural glories of its porticos with their shafts and roofs of stone, wander through the

avenue of brute- and human-headed sphinxes that leads to Luxor, a mile and a half away, pass by the red granite obelisks, the gigantic statues, the pyramidal towers, the sculptured gateway, the lofty colonnade, until the southern limit of the vast area is reached and Art's vast thought realized?

The naked mountain-ranges that follow the course of the Nile furnished the ancient Egyptians, in lieu of timber, exhaustless quarries of granite, sandstone, and syenite, in the working of which they very soon acquired a remarkable skill,—the equally exhaustless fertility of the valley securing them at once abundant leisure and a fabulous wealth to lavish in this direction. While their architecture presented symmetry wellnigh without fault, permanency and magnitude were undoubtedly the chief ends aimed at. Their brains brought forth Titans, and these they sought to clothe in the enduring garments of rock. The stupendous structures which they scattered through the valley in such profusion they literally covered with hieroglyphical records of their religious and political history; and, firmly believing that their bodies would live again, they made palaces of their tombs, and adorned their walls with scenic and written reminiscences of their private life. The lines on these strange record-books are still distinct, except where they have been defaced by war or modern vandalism, for the hand of Time rests lightly in regions that never know rain or feel frost. And now, ages after this people are dead and the language of their literature has passed from men's memories, there occurs the romance of the Rosetta Stone. The secrets of the monuments are unsealed. A sudden

light flashes in among the shadows of fifty centuries. The several princes of Egypt are found to have been united into one monarchy, under Menes, as far back at least as twenty-seven hundred years before the Christian era. Bunsen places his reign in the thirty-seventh, and Lepsius in the thirty-ninth before, and they are the most eminent German Egyptologists; while native and Greek authorities carry it still farther into the past. The more moderate figures of Mr. Poole, of the British Museum, are perhaps the safer, as he has with much painstaking reconciled the different fragmentary and full lists of dynasties given on the tablets found at Thebes and Abydos, with those in the works of Manetho. He has also discovered the luni-solar circle on the ceiling of the Memnonium, used in connection with the reign of the second king of the twelfth dynasty and that of the last of the twenty-sixth, thus making it possible, by astronomical calculation, to fix these reigns with comparative accuracy at the beginning of the twentieth and of the fifth century before Christ. A panegyric year, or year of festivals, and other ancient Egyptian divisions of time, he has also ferreted out and brought into use in his estimates. He has furthermore satisfactorily shown that many of the dynasties were contemporaneous, thus materially shortening the time. But even with his calculations we find Egypt a consolidated monarchy, capable of building the vast city of Memphis, founding Thebes, and, with consummate engineering skill, turning with a dike the course of the Nile, seven hundred years prior to Abraham's visit. And since Menes, three hundred years had scarcely passed before the pyramids appeared on the plain,

placed and fashioned with such precision that scientific computations can be safely based on their lines of shadow, and of such massive and firm masonry that they have stood intact till now, and seem destined so to stand till the world burns. The very oldest of the temple-tombs known, those of Beni-Hassan on the Lower Nile, are models of mathematical exactness, architectural symmetry, and fine finish. They are evidently the work of master-artists. Indeed, as far back as archæologists have been able to penetrate, they have found dense masses of people, organized labor, a settled government, a profound knowledge of the mechanic and fine arts, an acquaintance with letters, even advanced notions of science. Beyond Menes, clouds of myth and fable have settled about the centuries. All that there is left us of value is a single tradition that the first emigrants poured into the Nile valley from the east. Their nationality and the date of their coming are matters about which men still widely differ. We are, however, safe in saying that many hundreds of years must have elapsed between this handful of adventurers and the afterward million-peopled monarchy of Menes.

We had designed to consider our theme from three other stand-points,—man's primal condition, the development of race, and the growth of language; but this we must at present defer. A word or two in conclusion on some of the new views taken of Bible chronology.

Although geological time-estimates are, as we have remarked, necessarily indefinite, yet the impression is daily gaining ground in scientific circles that the

changes effected in the earth's crust since man came require very many more centuries than the sixty supposed to be given in the Bible narrative; while the twenty-three and a half between the Flood and Christ are, by ruins still extant of past civilizations, most positively proved to be by far too few. Those of Egypt, for example, we know, call for at least thirty, and Egypt is supposed to be younger than India, and both but colonial offspring of some still older people. The extensive study given to development of language and of race has also profoundly impressed scholars with the necessity of a very much longer period to account adequately for phenomena thus brought to light. This seeming conflict between science and revelation has been variously explained. None of the theories advanced are fully free from fault, yet none are without suggestions of value.

It is found that the Septuagint version dates the Flood eight hundred years farther back than the Hebrew, the one we use; that its different statements harmonize with themselves, while ours do not; that it was used by Paul in his Epistles, and it may be a translation of a much older manuscript. But the discovery of so great an error in one or the other naturally leads us to distrust the chronological accuracy of both. Some maintain that the whole trouble arises from false interpretations; that Moses did not design to give family genealogies; that names which seem to be those of individuals are doubtless in many instances names of tribes; and that from these occasional breaks in the chain it has become impossible to compute the time from Adam to Abraham. In this connection, the sug-

gestion has been thrown out that the events have occurred in the order recorded, but, as Moses was aiming solely at portraying God's providences, he selected only typical men and times, designedly dropping out of his narrative whatever was not especially fitted to advance his purpose. And in this same connection a hope has been expressed that the translation of the Bible into Arabic may result in unravelling the mystery that still shrouds Oriental methods of writing history.

A third theory is, that the first chapter of Genesis refers in general terms to the creation of Pre-Adamites, and that an indefinite period intervenes between that and the chapter following. It is thought that had not the world been thus peopled Cain would never have expressed fear that men would kill him should he be banished from home. It is thought, too, that otherwise it would have been impossible for him to find either mechanics to build his cities or families to inhabit them, or for him to marry, except one of his own sisters. It is also surmised that this interpretation throws light on that difficult passage in which "daughters of men" are spoken of as marrying the "sons of God," "sons of God" being rendered "servants of gods," idolaters, the Pre-Adamites.

A still further theory is, that allegory and history are so intimately interwoven that it is utterly useless to attempt to separate them. Another, and the last we will mention, is that our difficulties come from confused notions of interpretation and revelation; that so long as we hold to plenary inspiration, this question of time will be but one of the many problems that will hopelessly perplex the thought and try the faith of be-

lievers; that Bible writers were all of them divinely inspired men, but were something more than mere passive amanuenses; that they retained the free use of every faculty, introducing into their books their individual peculiarities of literary style and of mental temperament; that revelation extended only to the moral and religious aspects of their themes, they being left to their own imperfections, their own limited human learning, when matters of simple history or science entered in. This class of thinkers contend that the moment we lose sight of these two distinctions our footing becomes insecure. Still, it would be difficult for them to explain what some one has called "Moses's inspiration of reticence," his complete avoidance of that species of extravagance into which every other cosmogonist has fatally fallen. It is certainly not a little remarkable that at every new advance in scientific investigation new meanings have been ingeniously wrung out of those first chapters, suited to each new exigency.

While these many widely differing notions witness to the confusion in which this whole subject is yet involved, they also show some reconciliation possible and encourage Christians to still hold firm their confidence and with patience wait.

PART SECOND.

SATAN ANTICIPATED.
THE KEY TO SUCCESS.
SHELLEY.
THE BRONTË SISTERS.



SATAN ANTICIPATED.

I PROPOSE to illustrate how God, after having determined to create man in his own image, foreseeing that sin would come and that struggle would follow sin, left his physical, intellectual, and moral creations in the form of germs, gifted with tendencies to growth, and subject to such laws that their unfolding and final perfection should be reached through this very struggle; thus not only thwarting Satan in his designs, but converting him into a most important, though unwitting, instrument in the development of both the nobility and the joy of mankind.

When the sun's heat reaches the buried seed there ensues a struggling of forces, the germ forcing moisture from the soil against inertia and gravity, separating elements chemically knit together, grouping them into new compositions, bursting their coffin-lids, and crowding up their heads for breath. Every leaf is a field of conflict, decomposing and assimilating gases and liquids. Trees battle with the winds, and, that they may not be worsted, strike their roots still deeper and bind their sinews in stronger cohesion. Thus plants struggle through every period of their growth. When they cease their contendings they breathe out their lives.

In converting vegetable into animal tissue there appears the same phenomenon of destroying old and forming new chemical compounds, that exists in the growth of flower and leaf. Animal as well as vegetable life enters through infancy and weakness, and reaches maturity only through struggle. This fierce chemical conflict that ceaselessly goes on while dead matter is thus being developed into plants, and plants into muscle, is but preparatory to a fiercer one, that of animal with animal, developing tribal characteristics among the brutes.* Rarely is one born, from mote to mammoth, but comes battle-proof at birth and gifted with instincts for fight. A microscope will reveal a contest going on among the million occupants of a drop of vinegar. The fish for defence have coats of mail; for attack, weapons of bone. The ants of Africa marshal their liliputian forces with Napoleonic skill, and endure with fortitude worthy of Greek antagonists. From chaos until now, between bill and spur, claw and tearing tooth, heel and horn, sting and tightening coil, has this universal war been waging. From now until the world burns it will continue to wage. God armed the warriors, meant the fighting, planned the issue.

Mind, like plant and animal, commences in the germ with no visible signs of power, and its development is effected by giving it, to live in, act through, and preserve, a strange compound of flesh and bone possessing impulses in direct antagonism to its own. The mind, forced to feed and clothe the body, is placed upon an earth for the most part either hopelessly deluged by water, piled into mountains, or spread out into long reaches of burning desert and bleak moor. Only a

few small plats of ground are capable of bearing fruit or are fit for habitation, while even these are governed by laws of reproduction so hidden that only after an apparent waste of vast energy and material, patient experiment at last discovers them. The metals are distributed through swamp bogs, mingled with the shifting sands of rivers, or poured into the crevices of metamorphic rocks. Storms beat pitilessly about the body, frosts bite it, sunbeams scorch it, winds buffet it. Yet the mind, thus compelled to shelter this foundling of flesh intrusted to its keeping, finds Nature tantalizingly giving building-material in the rough, trees and quarries, without furnishing even a saw or an axe for the hands of industry. Forced to move about this cumbersome body, and soon tiring of its slow paces and searching for easier and swifter modes of travel, it sees the wild horse without a rider; but when it tries to mount him, "Catch me," he saucily whinnies, and bounds away over the prairie. Dangers beset it on every hand, deserts puff simooms in its face, waves toss their mad-caps over it, mountains belch flames at its coming or try to crush it with the avalanche. From this continual opposition to the mind's efforts to care for that over which it is placed guardian, the issue is, it becomes an Aladdin's lamp, and the elemental genii, the slaves of the lamp. It touches forests, and they melt; it yokes steam-power to machinery, and trains of carriages bear the freightage of nations through tunnelled mountains, and monstrous sea-gulls of commerce flap their wings around the world. It looks through telescopic tubes, and banks of nebulous mist are resolved into universes of stars. It mounts electric

steeds, and swifter than light dashes along the telegraphic highways of modern life.

These are but the beginnings of its trials and triumphs. Often after it has built its cities and secured its comforts it finds them consumed by tongues of fire, poisoned with malaria, or crushed under the tread of earthquakes. But out from this fiercer strife come increased intellectual vigor, deeper knowledge of natural law, and wider views of a ruling God. Its strivings with these outer forces are still but faintest echoes of those with the inner, in which the angels and devils of human nature are desperately battling for moral mastery.

Through struggle material beauties find origin and unfolding. Sunbeams by forcing their way through a semi-transparent atmosphere or drifting banks of mist paint the golden glories of autumnal skies, and form the twilight with its waking dreams and thronging memories. Rainbows bend only on the clouds of passing storms and above the plunge of Niagaras. From contests come those charmed eddying of waters before they leap, the windings of rivers, curlings of waves, billowed beauties of lakes and woods, prairies and drifting clouds. Curves come always from contests between centripetal and centrifugal forces. By gravity contending respectively with the force of projectiles, cohesion, and the upward tendencies of plants, fountains are gifted with their graceful overflow, dewes globuled, and boughs of trees trailed in beauty.

So all the finer beauties in thought and feeling are children of struggle. Thence came Hood's touching plea for Christian charity, "The Bridge of Sighs,"

Whittier's "Maud Muller" voicing the "might have been," the tenderness of Tennyson's "In Memoriam," "The Court Lady," that choice offering of Mrs. Browning's genius to English literature. It is through watchings at the sick-bed, tears and prayers for the erring, the fading of cherished hopes, that are developed life's rarest graces. Unrivalled for loveliness will ever be the smile of trust that lights the face of sorrow.

No less truly has struggle been chosen for the development in character of the attribute of grandeur. As its chief source in inorganic matter is the display of power, seen in the violent commotions of the elements, as earthquakes, volcanoes, conflagrations, lightnings, and tempests, and as among brutes the highest grandeur is found in their deadly contests, where serpents strive with eagles, tigers with rhinoceri, where lionesses brave dangers, suffer fatigue, or close in death-grapple in defence of their young; so with more marked emphasis human lives grow grand in dungeons, on racks and beds of torture, at the stake and amid thunderings of artillery, because there the greatest amount of spiritual force is concentrated and is in greatest activity. Only through the mighty martyr strugglings of the world's benefactors does the Creator's image become manifest in his creatures.

From times of fable until now, freedom has had her votaries. Neither arctic coldness which fetters seas in frost, nor the enervating influence of tropical heat, can still the heart's throbbings for freedom. This instinctive aspiration may be found even among the savage tribes of men. It is the very last of the nobler promptings that dies out in the soul. The Esquimaux' huts of ice

and the shifting tents of Arabs are among the strongholds of liberty. Pawnees defend with avenging tomahawks the hunting-grounds of their people, and in the mountains of the Orient gleam in jealous guard the drawn scimitars of the worshippers of fire. With advancing civilization this love grows stronger, and its manifestations clothe with sublimity the records of individual and national life.

Equally prevalent is the passion for tyranny. Desire for glory and power, at first ennobling, when once grown morbid holds the rights of others in light esteem. Red-handed War, Conflagration with his flaming torches, and hollow-eyed Hunger are its ministers. The halls of legislation echo with its sophisms and sordid appeals. Thrones are filled with its minions. Its poisons infest the avenues of trade. Art with her hundred hands forges on her anvils the chains that clank about the necks of commoners and kings. The holy offices of the church itself it pollutes with the proselyting lust of its mitred bigots.

These are of necessity deadly antagonistic passions. Their war-cry has sounded since the first transgression, and under their opposing banners have rallied millions in every age. Their contests widen from individual breasts to fields where battalions decide the destinies of empires. But this fierce contest, thus inseparable from liberty's life, is indispensable to its growth, gifts it with immortal youth, and unveils the splendor of its ideal. It is the struggle that follows sunlight on the soul, quickening into verdure the germs lying latent within it.

Earth is sown thick with battle-fields. Indeed,

where is the country that has not had its age of heroes, days of aspiration, tokens of promise, whose soil has not been made sacred by the blood of its sons? Golden memories are woven with the shadows that rest upon the hearth-stones of Greece. Xerxes by Malian treachery gained entrance through the pass of Thermopylæ only to become an unwilling witness to the sea-fight at Salamis and add lasting lustre to Grecian fame by the final discomfiture of his forces on the plains of Platæa. Afterward in that defile a marble lion commemorated those who loved liberty better than they loved life. When Spanish hordes threatened the throne of the Montezumas, thousands of Aztecs sprang to arms at the sound of alarm in the temple of their war-god; and not until the noble Guatemozin was taken captive, and his palace and people lay together in helpless ruin, could haughty Castile claim place among the dynasties of the New World. The Netherland provinces, drilled to arms and taught self-reliance by frequent battle, after eighty years of victories and defeats brought to successful issue a revolution which for brilliant exploit and heroic constancy stands yet without a single historical parallel. Across the Channel liberty experienced through centuries crimsoned with blood the same painful processes of growth, slowly transforming tribes of barbarian Britons, and bands of adventurers from the swarming hives of Northern Europe, into a nation whose commerce whitens every sea, and on whose Westminster marble are chiselled the proudest names among the world's gifted and good. Dismembered Poland once had her Kosciusko. The lives of her citizens grew grand in struggle and sacrifice. Hungary had

her Kossuth, and his counsel still lives in the Magyar's memory. Switzerland, fearless and favored to-day in the very midst of jealous despotisms, has a past of almost unbroken conflict, reaching far back into the legendary times of Tell's championship and victory. We Americans fondly revert to the checkered experiences of our own country's battle-birth. We pronounce with pride the names of Otis and Henry, who dauntlessly threw down the gauntlet to Europe's mightiest monarchy, and by their eloquent denunciations of royal writs kindled thronged assemblies and lit the fires of revolution. We keep green the memory of the matrons who fought monopolies with their spinning-wheels. We speak in glowing panegyric of Washington and his men, who finally at Yorktown secured the Commonwealth's unchallenged entrance into the brotherhood of nations.

In the religious world we find the same innate love of freedom inspiring mankind, the same spirit of despotism seeking its overthrow, yet serving only the more to intensify and invigorate it, developing in the struggle wider mental range and loftier aspirations. Against theological despotism religious freedom has struggled into being, and to lasting permanence finally fought its way. The pages of European history drip with the blood of martyred multitudes of the world's best men. But such splendor of virtue as blazed out in the sixteenth century, rendering it forever memorable, how rich a return for the struggle and suffering caused by the tyranny that called it forth! The ordeal through which the nations were caused to pass, though thus fiery and terrible, served to develop as none other agency

could, sustained sublimities of purpose in the hearts of many who now walk in light.

Relentless as are these despotisms without, shadowing with their inhumanities the domains of political and religious belief, a sterner one seeks to rule within, to darken with a deadlier curse the soul's inner life.

God has kindly gifted man with nerves that tingle at touch of zephyr and sunbeam, thrill to harmonies of sound, cool flavor of fruits, odorous incense of flowers, colorings and curves of beauty. He has gifted him with memory, to daguerrotype into pleasing permanence these impressions of the senses; with fancy, to pattern them into new combinations of loveliness; with powers of discrimination, to explore the laws that underlie phenomena; and with fountains of feeling whose streams nourish his germs of thought. He has also gifted him with moral attributes fashioned after the Divine image, and has by the freedom of his will made him the arbiter of his own destiny.

The different parts of man's nature are knit together in closest ties, each aiding the other in its development, each over the other exercising an influence from which there is no escape. The intellect is forced into thoughtful cognizance of messages from the senses, forced to carry the case before the judgment-seat of conscience, between whose decisions and the pleadings of passion the will, though free in choice, is yet compelled to choose and issue its decrees to the waiting muscles of the flesh. Only the wand of a dreamless sleep can check this interplay of forces once begun.

Constituted for mutual helpmeets, when healthfully confederated there is no obstacle so formidable as to

successfully baffle them in their purpose, and no height of moral grandeur beyond the reach of their attainment. However, a prescribed sphere of influence and effort has been assigned to each. A disregard for established laws by any usurping appetite or faculty threatens the overthrow of republican rule within, infringes upon inviolable rights, and, if continued, the whole nature through the rapidly multiplying power of habit lies manacled by a despotism from which there is ever lessening hope of rescue.

Let republican rule be maintained among the elements, and the whole earth ceaselessly gladdens with the blended smiles of spring-time and autumn. But when among them the balance of power is lost, when either, ruthlessly violating the laws of confederation, usurps the throne, what was once an indispensable agent in the processes of nature is transformed into a frenzied Titan. Our mountain-ranges, the crystallized waves of a troubled sea, record tyrannies of fire in the æons of the past. For the thrones of their summits the dynasties of Frost and Flame stoutly contend. For centuries will Enceladus seem peacefully sleeping in the caverns of the hills, unmindful of his chains of ice and adamant, until in an unexpected moment he bursts every barrier, crimsoning the sky with his breath and melting the snows of unnumbered winters by the kindled fervor of his passion. Here a Herculaneum and there a Pompeii, with their genius-touched marble and throngs of life, he smites in the hour of his anger, and only after generations have flourished and fallen does some traveller chance upon the forgotten grave of their greatness. The arctics down whose voiceless valleys

the torpid glaciers creep, the parched deserts of the tropics, the smittings of lightning, destructive delugings of spring floods, the rush of tornadoes that uproot forests and engulf the proudest navies of the seas, miasms that dry with plagues and fever the fountains of life, all betoken the overthrow of republican equality among the elements, and testify to the fearful dangers that beset the least disturbance of the balance of power.

In the first human organism these same physical agencies, in perfect equipoise, were mysteriously linked with spiritual. There was not a note of discord or throb of pain. Through arterial channels flowed from heart to finger-tips pure waters of the river of life, while along delicately branching lines of nerves harmless lightnings flashed telegrams of stainless thought.

But the Creator, in order that moral worth might be developed in his creatures, was necessitated to expose their innocency to the possibility of taint. They must be held amenable to fixed codes of law and at the same time be endowed with perfect freedom of choice. Strength must come through struggle; liberty be twin-born with power to enchain. A Tree of Probation must be planted in the Garden of Delights. Had Jehovah never suffered Satan to hold intercourse with mankind, or had he by his visible presence overawed alike the tempter and the tempted; had he at once and forever torn away every mask of deceit and unearthed evil from every hiding-place, rendered impossible all attempts at sophistry by placing his intelligencies so perfectly *en rapport* with each other that the inmost recesses of the mind, emotions and motives in their very incipency, should lie exposed to every eye, sin

and suffering would never have found lodgment in the soul. But humanity, thus rendered safe, would have been left hopelessly ignoble, occupying the low plane of brute life without prospect of progress or vestige of royalty. The danger was imminent, but indispensable; for man never could have become Godlike had it not been possible for him to degenerate into a fiend. The permitted temptation came, man fell, and behind him, exiled and disconsolate, commissioned cherubim closed the gates of his lost Eden, and the flaming sword of Providence guarded the unplucked fruit of the Tree of Life. Since then galling manacles of guilt have fettered limb and thought.

By persistent misuse of mental and physical functions habit turns jailer, thrusting individuals into the prisons of disease. There are none but have felt the tightening chains of this tyranny, but have taken Mazzeppa's ride on Passion's wild courser, painfully experiencing the penalties of violating the Divine command. Laws of inheritance, social and domestic ties, the ever-importuning necessities of daily life, all the multiform influences that beleaguer the soul from birth, perverted add chain to chain, until at last self-induced personal tyrannies end in those organized evils of Church and State which we have seen poisoning nations and perpetuating themselves through centuries. As at the beginning so now the tempter masks his designs, offering larger gifts of freedom, wider ranges of thought, fuller cups of pleasure, loftier seats of power, garlanding his chains with roses and frescoing his dungeons with endless vistas of delight. Above every foot we find fettermarks; in every voice, sadness; in every life, sin.

Mastery over these inner usurping forces, freedom from prejudices, inordinate appetites and passions, disorganizing thoughts that corrode within, can never be secured except through the most persistent struggle. Yet this fierce battle with self, thus universal as the race, from which neither class nor age is exempt rarely a waking hour, a battle fought often at fearful odds, often terminating in irremediable disaster, furnishes many signal instances of the overthrow of evil, and the enthronement in the soul of the attributes of the true and the good.

All of men's mental and moral greatness we thus find to have a beginning far back in undeveloped germs, and finally to reach perfection only by means of long processes of growth through unremittent struggle. Equally true is it that this same struggle has also been rendered absolutely indispensable to the realization of all of men's *nobler* joys. The Delectable Mountains are gained only after a perilous and fatiguing pilgrimage and a hand-to-hand encounter with some armed Apollyon. To the illustration and proof of this, the second division of our theme, we now direct attention.

First, man is placed in the midst of mysteries, and at the same time gifted with an intense desire to solve them. But as soon as one is made to yield the thing or thought in its keeping, the lively joy that follows strangely proves as transient as it is lively, and the soul is again left craving, perpetual pleasure coming thus only through perpetual struggle. Part of the human race God walls in with mountains; pilgrims climb their summits, for they must see beyond. He sends drift-

wood over the ocean, and ships plough through peril and pain to spy out the hidden land. He hems in the poles of the earth with ice and darkness; hardy mariners cut their path through the ice and bear the blight of the darkness. He hides Sir John Franklin somewhere on the bleak coasts or in the frozen seas; expedition follows expedition to solve the mystery of his fate. He lifts a teakettle's lid; trains of thought thus started are soon followed by trains of cars. He drops an apple on Newton's head, shoots a meteor across the sky, wheels the stars in their orbits; Newton is filled with earnest questionings; then come years of struggle; then "*Principia*." The subtler the mystery, the more persistent and painstaking becomes the search for it. Ease, money, and lives are freely given to gratify this intense and universal passion of mankind.

Hope is a second source of pleasure whose existence depends upon struggle. In the darkest hours, while sorrows are busiest in their blighting, there is laid the foundation for the most comforting and ennobling hopes. We are apt to lose sight of the glories of immortality when earthly schemes prosper, for we then find satisfaction in present social excitements, in the bustle of business, in the conscious possession of power. A state of perfect satisfaction precludes the possibility of hope even in matters of a worldly nature. Especially true is it that the soul's privileged Pisgah of spiritual prospect rises from the vale of tears. The preparatory work of disappointment and sorrow, intensifying desire, is imperatively needed to kindle and exalt the imagination. Not a worse calamity could befall us than to have our earthly ambitions reach fruition, and have

this prove the very end we seek, for then our mental states would never reach higher than the present low level of this world, the other life remaining curtained and uncared for. Religious intolerance imprisoned John Bunyan, and his mind at once began to fill with those grand conceptions of his "*Pilgrim's Progress*," which have since then given to multitudes such solace and such spiritual elevation. Dante conceived and wrote his "*Paradiso*" while in forced exile and in deep mourning for the object of his earthly love. His desires and anticipations all lay beyond death's river. How frequently the Good Shepherd carries away the lambs in order that the flock may follow them into greener pastures! Frequently, too, the very clouds of time are golden while they float in the sky of the future, we happily mistaking their character until the very moment they burst and deluge us with grief. The joy in looking for their coming far exceeds the pain at the bursting of the grief. God evidently purposed in his kindness that we should ever people the air with bright phantoms, and thus entice our souls into a ceaseless singing of gladness.

This office of struggle is again seen in our love of adventure. It is a strange phenomenon of the heart for it to so cling to life and then find one of its greatest pleasures in its perilling. It involves a paradox; but note its mission. Man's highest virtues are developed from germs by strugglings amid dangers. There are lurking everywhere dangers of storms and billows, of fires and earthquakes, of precipices and poisonous airs. Dangers watch outside the door; their greedy eyes glare in at the windows, their red tongues dart from

between the logs in the fireplace. God might have made us tremble from morning till night for fear of life or limb, but that would have thwarted his plans for our development, for we should only have cowered in the corner and died of fright. He might have made us indifferent, but this would have resulted in equal disaster. We should not only have lost much of the discipline of the struggle, but have been robbed of almost all its joy. There could never have been a show of true courage, for it comes only from a conscious perilling of what we prize. So God, while he made us value life, caused the near presence of danger to be exhilarating. At such times we possess greater intellectual and moral vigor. This phenomenon is one of the evidences of our immortality, for it shows we count many things of greater value than the present, evincing an intuitive desire to climb some eminence where we can get a glimpse and feel the shining of the other life. Earth is clasping us less tightly. We get a foretaste of the freedom that comes after the death-pangs are over and the body is gone.

Another illustration is found in the desire of excelling. This is one of our strongest passions. The Creator designed that man should strive not only with the elements for food and shelter, but also with his fellow for possession and power. He crowned him monarch over the beasts, the fowls, and the fishes, the forces of fire and water, simply by filling him with imperative physical wants whose satisfaction could be secured only by such mastery, firing him with restless curiosity to search out secrets, with love of adventure that turns perils to pleasures, and lastly with this in-

tense passion for power. He has made us monarchs of men in the same way by sending us forth weak and ignorant, yet aflame with desires to know and rule, thus bidding us search before we know, conquer before we rule. Those sitting crowned on thrones once cried in cradles, and those that now cry in cradles God invites to sit crowned on thrones. His invitation is found in this inborn passion for power. There are other than political empires. Humboldt held a sceptre; Hugh Miller swayed a wider province than Alexander's; John Howard was not without dominion; and the sick one that patiently waits the coming of the death-angel is wrapped about in the ermine of royalty. The desire to rule does not necessitate a clashing of rights or true interests. The consciousness of sovereignty may be gratified by all, but only through that agency employed to develop our virtues, the agency of struggle.

This principle again appears in our love of the perfect. Plants will fight persistently against opposing gravitation, send out rootlets to forage for food, let no leaf fall without supplying its place with a bud, will endure every manner of harsh treatment, if they can but perfect the implanted ideal. They are never tempted to relinquish their purpose, never feel disheartened or tremble with fear, and so there never comes a single joy to gladden them in the battle or after the battle is ended. Inexorable fate drives them to completion. To each one of us have been intrusted germinal ideals, instinct with growing life. We are all created imperfect designedly. Only by surmounting difficulties are we enabled to advance toward perfection. Unlike plants, we may become disheartened,

and so God has given us alike for incentive and reward the love of the perfect. Instances might be cited to an indefinite extent, illustrating the intensity of this desire of the mind to realize its implanted ideals, and the compensating joys that accompany and crown a work's completion.

Memory in one characteristic of its power furnishes a further and most apt illustration. It is a marked fact that there never was a struggle, however painful in the present, though it wring out blood and tears, even though it end in bitter failure, but that, if stamped with manly purpose, it served in retrospect greatly to enhance and multiply man's nobler joys. The world's sweetest memories are memories of its sorest griefs. Now, after the pain and passion are gone, after the fire that flamed to purify has expired in the ashes, we experience, at the recall of the nations' colossal battlings for freedom that brighten the centuries, the most exalted joy at witnessing the development of the sublime in man.

Pleasure comes, too, from tears shed at the graves of genius, of friendship, and of the heart's dead hopes. The darkest passages of our own former lives, if filled with noble endeavor, are counted by us, when freed from the stinging of the sorrow, among the brightest, gathering about them far pleasanter associations than characterize the remembrance of those scenes which, while passing, seemed so prodigal of joy. If we watch our musings, we will find ourselves loving to linger at the graves of our once fond hopes, at the places where we struggled and suffered most, if for worthy ends, where our hot tears fell and our sad hearts sighed for

rest. Often we pleasantly recall the trials of other days, filling our talk with histories of our sorrows. Strong upon us is the power of their fascination. Intense and subtle is the pleasure that thrills us looking upon the scenes where the light of memory rests upon the moss-grown ruins of what we once held dear. The sadness we feel at such times is a tender sadness, hushing into holy quiet the boisterousness of mirth. *Gone*,—that is the Mountain of Grief's Transfiguration.

Among all our many sources of joy in undoubted prominence ranks that of sympathy, an influence that knits together friends, endears home circles, incites philanthropy, fires the breasts of patriots, and consecrates the cross. To a consideration of its nature and of the necessity of struggle for its birth and development we invite special attention.

Tennyson, in his "Palace of Art," pictures with inimitable fancy the utter dreariness of solitude to the soul, though it be within apartments tapestried and hung with canvas to suit every mood, paved in skilful mosaic, stored with sculptured graces, crimsoned with colored light, filled with chimes of bells, looking in upon open courts where fountains leap and murmur, or out over wide vistas of landscape loveliness. Under the portals of this palace for three years there never pass any of the social ills of life, its baffled hopes or sharp encounters, its burdens of care or death-sundered ties of love's relationships. But when the fourth year comes, phantom shapes people the spirit's vision. A loathing and a longing succeed this unshared splendor from which with all her subtle reasonings she fails to

flee. Chillness and stupor, the blank stare of corpses and the heated closeness of prisons, settle with blight and mildew upon her thought, while the distant hum of human voices adds to the stifling stillness of her isolation.

In "Alastor" the same conception comes glowing from the heart of Shelley. A poet of rare gifts and ripe culture vainly seeks in self-centred seclusion the lasting satisfaction which noble human sympathies alone have power to bestow. His deeply-seated social yearnings, being repressed by wider travel and more absorbing contemplation, finally break out into avenging furies, dethroning those matchless powers to which is so persistently refused companionship. Earthlier natures escape insanity, but fall victims to stolid stoicism, a far more abject and inglorious fate.

But the heart to which sympathy is of such vital moment, responding as Memnon to morn in rich musical answer to its sunbeam's softest touch, is necessitated, not only by the asperities that mark the world's life, but by the nature of its own organism, to derive these its social joys from seemingly social ills, social joys being based on social virtues which are the names of victories won in many a fierce encounter. That sympathy can thus thrive only in an atmosphere of strife and sorrow will clearly appear in an analysis of its nature, while biography and history everywhere abound in corroborative proofs. We will consider it in its separate phases.

When death's fingers freeze love's lips to marble, failures eclipse, foes plot, or calumnies poison the air, under any discouraging or saddening circumstance, in

the first bursts of grief the stricken heart craves solitude, but afterward the consolations of friendship never find warmer welcome or kindle nobler joys. There is an undoubted pleasure in the simple unburdening of sorrow. In the woe itself, of course, there is none, but there is in its unburdening. The novelist, cognizant of this fascination of tears, would deem himself violating one of the first canons of his art did he not dip his pen in pathos. Should Ristori unclasp her robe of tragedy, how soon would the spell of her enchantment be broken ! Powers, our great sculptor, left the ideal of his highest inspiration chained. Strike off the Greek Slave's marble fetter, and you darken the sunlight of her beauty. Hood's "Bridge of Sighs" and "Song of the Shirt" outlast the flash and sparkle of his wit. Whittier's "Maud Muller" and Burns's "Highland Mary" we never tire of nor ever forget. Deepening interest centres about exiled Evangeline's life-long search for her Acadian lover, till silvered with age and broken with sorrow she is privileged at last at his death-bed to exchange words of parting. Minor strains in music, pictured grief on canvas, irresistibly win their way to the heart, eliciting an admiration that soon deepens into love. We have witnessed the simple melody "Pass under the Rod," a most touching epitome of crushed hopes, hush thronged parlors into felt quiet, the gay revellers gladly exchanging their sunnier mirth for more subdued and profounder pleasure. Both author and artist clothe their fictitious personages with the garments of the world's real grief. They either transform us by the magic wand of genius into our former selves by revivifying the experiences of the past, or else

quicken in us a sympathetic answer to another's woe. Voicing grief kindles joy. There is undoubted luxury in tears. The phenomenon of this attractiveness of gloom in literature and art can be accounted for on no other hypothesis.

This same law operates with greater directness and consequently fuller force in the free recital of friend to friend of trying incidents in personal history. The more vividly outlined past adds pungency to feeling, arousing as by a trumpet-call. Every trace of stupor is gone. The soul overwhelmed with loneliness and dependence in its rudely shaken self-trust, alert, spiritualized, intensely responsive, adds to the joy of lessening its load a keen sense of gratitude, a comforting consciousness that the trial is known, appreciated, and generously shared by a companion spirit; a bleeding hope revived by the oil of consolation, of encouragement, of openly-avowed confidence, of undimmed faith and proffers of needed aid. The state in which a noble nature is left after the tempest of sorrow has swept over it is therefore beyond doubt the most favorable of any to the birth and growth of friendly sympathies.

Furthermore, acquaintanceships cast into the crucible of affliction are subjected to the most searching test; the dross of selfishness is burnt to cinders; the gold of self-forgetting love is purified and brightened by the process. Confidence once thus firmly established, the curtain is drawn from before the inner life of emotion and motive, and guarded conventionalism gives place to a cordial intercourse whose influence, extending beyond the painful experiences in which it first found origin,

goes on enriching thought and feeling through all the departments and periods of the soul's growth. Corresponding results by additional agencies leave their impress also on him whose heart overflows in sympathy to these urgent appeals. To generously share in and thus lighten another's grief, to be admitted into confidence, be an invited witness to the hidden life where spiritual forces are evolving elements of character from their contests, where what is grand and Godlike stands in unveiled splendor, to be nobly conscious of one's own potent, transforming presence there, afford delights which only they who have felt them know. They can come through no other channel. They are the star-glories of Life's night. Even where congenial tastes alone give birth to friendly feeling, to secure for it permanency and worth there must enter in also the ingredient of nobility of motive, for unless the disclosures necessarily resulting from intimate fellowship end in well-founded admiration familiarity soon breeds contempt, and there can be no other nobility than that developed and proved in battle.

But even admiration of this general nature arising from discovering in another amiable or heroic traits, though thus vital to friendship's very existence and often its cause, is in itself powerless to feed its fires. The relation is continually demanding greater intimacy, more direct declarations in word and life of self-sacrificing regard. The more positively personal those declarations are, the brighter will the fire burn. Again, this sympathy is in its very nature aggressive. The heart cannot long contentedly remain an inactive recipient. It craves constantly recurring opportunities for

earnest work. It knows no higher pleasure than to do, to dare, to suffer for the object of its devotion. Only through suffering and sorrow can these coveted opportunities come. The thirst moreover becomes insatiate. Past reminiscences will not suffice. Ennui ensues when the heart's activities are dead, while the pleasures of friendship grow nobler, more satisfying with each interchange of kindness and relief, the relation more intimate, the attachment stronger, the mutual revelation and development of souls more complete. Friendly sympathies may also be found closely interwoven with those absorbing passions of men, already mentioned, to solve mystery, indulge hope, seek adventure, grasp power, realize the perfect and transfigure the past, intensifying, directing, encouraging, rewarding.

To this sympathy that knits together friends, that which endears home-circles is so closely allied that the same arguments for the necessity of struggle to its birth and development apply with equal force, while in every point of variance we find additional proof. There is between the sexes a marked difference of endowment. Each is made possessor of gifts essential to the other, gifts which can, in fact, become the other's only through an intimate companionship. The wife needs the husband's strength of muscle, the boldness, dash, and decision of his thought, while she is peculiarly fitted to offer in exchange sympathy, caution, refinement, and unfaltering faith. Man is enabled to reach only by slow processes of reasoning conclusions arrived at by woman in the flash of her intuitions. His bravery, defective without her fortitude, when combined with it forms an impregnable tower of defence against every besieging

force of ill. Life's rude shocks of battle alone serve to unfold and render useful these individual traits, to discover the indispensable necessity of each to the other, and to open the fountains of joy which flow from their generous interchange. Cares and trials call forth on the one hand chivalric guardianship and devotion; on the other, sacrifice and stanch loyalty. Each other's worth shines out in the acts of each other's love. The more herculean their tasks, if directed to the attainment of a common benefit, the more conspicuous becomes their devotion, the closer their union, and the more permanent their delight.

Parents in the discharge of their trusts, while called to pass through repeated privations of physical comforts and ease, to withstand social enticements, to spend anxious nights at the sick-bed, often painfully to devise and execute effective methods of reproof that love may blend with law to win back to right the erring feet of their darlings, find compensation a thousandfold for it all in witnessing the imperishable impress of their own thought and life in the unfolding traits of these their second selves. He alone who can measure the true mother's joys as she pictures the glorious possibilities of her children can measure the worth of these privileges of sacrifice granted to her affection by the seemingly cruel necessities of the present life. The hunger of her heart can nowhere else find satisfaction. It is love's very nature to forget self: sacrifice is its vital air. Had it been from the first impossible for her to promote the present comfort or fashion the future fortune of her children, impossible for her ever to dry their tears with her kisses, or plead their case before the

Throne, had their character and destiny been from birth fixed as fate and fair as heaven, she might have had power to admire, but never could have felt those thrills of joy that follow the acts that now grow out of her tender solicitude, her motherly yearnings for her offspring, exposed as they are to the world's dangerous gusts of sorrow and of sin. Even were it possible for her affections under such circumstances to be born into life, they would soon beat out that life against the unyielding bars of such a prison. When her children fail of the fulfilment of her hopes, she covers them still with the mantle of a mother's charity, still dreams of some possible future when the long-watched-for turn in the battle-tide of passion and pain will surely come. Her importunate prayers at last bring her priceless blessings of peace. Nothing can shake her faith that Jehovah will yet reward the free outpouring of her wealth of love,—that she will not fruitlessly strive to lift the objects of her devotion from their low ambitions to those heights of goodness that tower in the millennium of her musings. Through the hiding veil of destiny, rent as by inspiration, she seems to see the fulness of the splendor that is in waiting. Should the frosts of death blight her buds of promise here, she feels she will yet see them opening in fadeless bloom in the Gardens of the Lord. How blessed at such a time the memories of her sacrifice! They accompany her like troops of angels. The air about her throbs with their song. With her, earth's attractions may fade with the fading forms of her dear ones, but her favored feet are thereby guided to the very border-land of the other life. On her lifted face al-

ready rests the radiance of its rising day. Only because the world's firesides have thus been its battle-grounds, and thereby revelators of its virtues, have they become almoners of its benefactions, centres of its choicest memories, prototypes of its Better Land.

The sympathy that incites philanthropy is cosmopolitan. It responds to wider claims than those of friendship or of family ties. It finds its birth in any scene of sorrow, in the presence of any accomplished or attempted wrong. Its blessings come from conscious acts of kindness, the restoration of violated rights, the return of sunshine into the hearts of the stricken and the disconsolate. Few who follow its behests ever live lives of ease or secure from society a fit recognition as its benefactors. Stern, self-denying, dangerous, often thankless tasks are apportioned those who worthily worship at its shrine. It summons them to battle-fields, to hospitals of wounded and sick soldiers, even to lazarettos where pestilences riot in human ruin. The fallen, those who glory in their fall, frequently become ungrateful objects of their care. To reform the world's abuses they must encounter its selfishness, fortified by capital, intrenched behind perverted opinion, sheltered under established custom, intimately allied with powerful parties in Church and State. Reformers must ever be in advance of their age. Their intelligence, and even the purity of their motives, are often made matters of question. Calumny, while it blackens their fame, provokingly checks, if not wholly thwarts, their enterprises of love. The desired progress is slow at best, advancing perhaps in the face of fixed bayonets, it may be amid the howlings of the mob whose good it

seeks. Its votaries are sometimes forced to test their fidelity in bonds and imprisonments, sometimes they end their careers on crosses of shame.

John Howard was comparatively purposeless until his inhuman treatment on board of a French privateer and afterward inside a French dungeon vividly impressed him with the wide prevalence of cruelties that had, unnoticed, already dug the graves of multitudes of his countrymen. And doubtless he would have rested with the righting simply of that wrong had not death subsequently entered the circle of his home and loosened the silver cord of life of one most passionately loved, and had not pain from an incurable disease finally lifted his thought by its purifying process above every enticement of time. Not until he had been thus schooled was he prepared, without prospect of preferment, at his own expense, upheld by no word of encouragement, year after year so resolutely to prosecute his mission of mercy, to visit the prisons of Britain and the Continent, to submit to many tedious weeks of confinement in the loathsome rooms of a Venetian lazaret-house, breathing noisome and pestilential airs, going where contagious lurked, where the bravest physicians durst not enter, forcing himself daily into the presence of the most appalling miseries and sins, that he might publish them to the world and thereby, if possible, effect their cure. His enterprises for the rescue of society's outcasts and the cleansing of its places of plague, carried forward by such indefatigable industry amid privations and perils, always met the scorn of the indifferent, the weak, contemptible pity of those at ease in Zion. He died near the Crimea of an infectious fever contracted in

the very act of philanthropic love. We cannot over-estimate his sacrifice. Wealth, comfort, time, safety, life itself, were John Howard's princely gifts to the criminal, the unfortunate, the forgotten.

After Dr. Jenner had spent twenty years of patient thought and experiment in proving and perfecting his discovery of the disinfectious properties of vaccine, and had issued a carefully written treatise, in which he detailed twenty-three cases of successful vaccination, he visited London to instruct physicians in the process, but only met first cold contumely, afterward open and relentless warfare. He was caricatured, accused of malpractice, of "bestializing" his victims, of introducing the diseases of cattle among his kind. Some of his patients were pelted with stones in the streets. Pulpits hurled at him their anathemas. The whole medical profession, incited by pride and envy, fostered the prejudices of the populace, until, overborne by his success, they were forced to yield. Then, adding insult to injury, many of them sought, by presenting fraudulent claims to discovery, basely to rob him of his laurels. The doctor became an old man before he was awarded recognition as a benefactor, though vaccine was of such intrinsic worth to the race that to discover it, as Cuvier has since remarked, would alone have rendered illustrious any era. Dr. Harvey was the same patient worker, and his theory of the circulation of the blood met with the same inveterate hate. He was ridiculed as a crack-brained impostor, even charged with designs to undermine religion and public morals. For years he was without a convert or a patient of any sort, almost without a friend. A quarter of a cen-

tury passed before what is to us one of the plainest of scientific truths gained credence, and wrought that revolution in medicine and surgery whose streams of beneficence water the world to-day. Sir Charles Bell spent forty years studying the nature and functions of the nerves, only to meet the same rebuffs, incredulity, and ingratitude.

Granville Sharp, a humble ordnance clerk, by a life of unremittent mental industry and generous self-sacrifice, set rolling waves of influence that swept the seas of every English slaver and eventually broke the shackles of every English slave. Possessed of an imperfect education, and absolutely without knowledge of law, he bravely began that celebrated defence of Jonathan Strong single-handed against the settled convictions of the entire English bar. By indefatigable research through mountains of dry documents, decisions of courts, and acts of parliament, he succeeded in summoning an array of facts that overthrew every antagonist. Case after case he carried through with the same persistency, until Chief-Justice Mansfield was absolutely forced by the irrefragable logic of this tireless advocate to declare that whoever set foot on British soil was thenceforth forever free. Though the meagre salary of his clerkship barely sufficed to keep him from debt, still every leisure moment through his entire life he scrupulously used to secure the rights of the negro, studying while others slept, and that without support from sympathy or hope of reward. Of course, such zeal proved a destroying firebrand in the camp of the enemy. Quickened by his example into the same sublime purpose, Clarkson, Wilberforce, Brougham,

and Buxton, after prodigies of labor, finished the work which he had with unconquerable courage carried forward without means, without a helping hand, against the adverse criticisms and declared wishes of an entire kingdom.

Anti-slavery agitators in our own times and country have not only been forced to encounter indifference and the curled lip of scorn, but to endure privations, to feel the relentless grasp of the law, often to perish at their posts, stricken down by the hands of ignorance and hate. The same incarnate evil that murdered a Lovejoy and dragged a Garrison through the streets of Boston, when finally threatened with overthrow by the irrepressible advocates of reform, desperately clutched at the throat of the nation and refused to let go its grasp until driven back by thrusts of bayonets and storms of canister.

The sympathy that incites philanthropy we thus see calls not to diverting pastimes, but to the endurance of incessant toil, to the discharge of the sternest duties in the face of obloquy, of danger, sometimes of death; for while the serpents of selfishness bruise the heels that crush them, how frequently those snatched from them stone their deliverers and leave their children to garnish their tombs. Only one of the ten lepers ever turned back to thank Christ for healing. Are then the lives of earnest philanthropists barren of joy? Is such love left without requital? Rather, we might ask, does not a single moment of conscious likeness to Christ yield profounder pleasure than a life of the empty worship and wealth of the world? And whence can such consciousness come except through just such tests of love's

loyalty? Strip a man of every worldly incentive, let him seek to benefit his age, not from selfish interest, not because of any possible prospect of pecuniary return or of social advancement, but from some deeply-seated sympathy for suffering, some intense desire to place upon the plane of virtue any victim of vice, and his soul's freed pinions lift him into the very sunlight of heaven. When misinterpreted and maligned by reason of the bigotry and conservatism of the ignorance he seeks to instruct and the fierce hate felt by the tyrannies he seeks to destroy, when thus rudely driven back from the world's broken cisterns of pleasure, then out of the flooding fulness of his enthusiasm to render real his conceptions of reform there well living fountains of sweet water.

In the sympathy that fires the breasts of patriots, we find struggle and suffering equally indispensable in the creation of human joy. Not only are tyrannies armed facts necessarily to be met and mastered before mankind can be free, but unconsciously most powerful agents in enhancing the value of the very rights they fight like fiends to destroy, enriching freedom through the discipline of the conflict with those imperishable associations that give it worth commensurate with the sacrifice. Freedom is a word of relative meaning, taking rank with the interests it conserves and the capacities for enjoyment of those over whom its influences operate. The freedom of the bird, though perfect of its kind, ranks as far below the angel's as the angel's thought and feeling transcend the bird's. If man rises in the scale of sentient intelligences through the developing power of struggle when that struggle results from his

heroic loyalty to any of his nobler impulses, the conclusion follows by irresistible logic that the joy-giving power of freedom is measured by the sacrifices and struggles of its votaries. Intimately associated with this conclusion, indeed inseparable from it, is a second, the immediateness and absolute surety of the reward. The moment an individual boldly asserts his freedom and courageously purposes to maintain it, that moment he is free, and so long as that high resolve is in the ascendant, directing and unfolding his powers, though it lead through inquisitorial fire or the carnage of battle, it kindles enthusiasm and lifts into ecstasy by the intensified consciousness of newly developed and nobly consecrated worth. Under such influences man seems to be treading upon the confines of the other life, to feel the bracings of its inspiration and to catch glimpses of its glory. There is also generally, if not universally, blended with this passion for personal freedom a warm attachment for the fatherland, as under its protecting shadow cluster the many endeared relations of our social life, and with its honor and safety are intimately involved our own. Therefore, those political conflicts that serve at once to call out and to gratify this double attachment become sources of double joy.

Meagre as was the freedom under the reign of the Montezumas, yet rather than have that snatched from them by Spanish hordes, a brave people gave to history the scenes of that memorable night when the waters that shut in the Island City grew crimson, and dead and dying were heaped along causeways drenched in blood. To fiercer ordeal Cortez afterward brought Aztec bravery, but to no purpose. One by one fell the

proud and costly fabrics of their capital. Famine and disease became rivals of fire and sword to conquer their indomitable purpose, still they sublimely refused to ask for quarter. There must have been a wonderfully compensating joy following the promptings of this love for liberty and country, unknown to life's more even tenor, to have sustained the enthusiasm of the Mexican and to have nerved him to such unflinching fortitude amid cruelties that still live in memory a marvel and a shame. There must have been thrills of ecstasy following that vigorous quickening of mind and that noble mastery of immortality over the pleading anguish of the flesh. If a people semi-civilized and idolatrous could have found in these strugglings pleasures commensurate with the pain, what may not be predicated of battlings for enlightened freedom with wider vision and a Christ-born promise, whose tender budding escapes the plucking fingers of failure?

William the Silent seemed peculiarly fitted for a life of elegant and luxurious ease. A gifted conversationalist, high-born and wealthy, familiar with the teachings of the schools and the refinements of courts, he had thrown open the parlors of his Nassau palace in genial hospitality, and at his loaded tables given daily welcome to the titled and the learned of Europe. But liberty's impending ruin touched the grander impulses of his nature, awakened longings that neither society's elegant repose nor the fascinating excitements of the feast, neither sculpture, nor song, nor literature's lettered ease, had power to quiet with their enchantments. Afterward, when he saw the foreign mercenaries' cruelties and license, the intruding *espionage* of the Inquisition,

the States-General ignored, the professed concessions of the "Joyful Entrance" a mockery and a cheat, he promptly exchanged the most enticing political prospects of any Netherland grandee for the nobler consciousness of worth that recompenses the dangerous duties of the patriot-hero. Nothing could daunt his courage or dampen his ardor. Though the delusive lull of tyranny that followed Granvelle's recall was soon succeeded by the blood-council of Alva, though he saw himself deserted, his offices given to another, his estates confiscated, his coat of arms dishonored, his son held prisoner, himself an exile, the last of his plate, his furniture, and his credit turned into soldiers to end only in fruitless forays and the stricken field of Jemmingen, yet with an unfaltering faith devoutly waiting God's providence he steadfastly watched the heavens for the gray dawn of liberty, until at last the glad tidings came that the "Sea-Beggars," driven from English shores, had captured Brill and on its walls gallantly unfurled the trampled banner of the Republic. And when a few brilliant victories again ended in defeat, sublimely purposing to perish rather than surrender, he uttered that memorable saying, "I go to Holland to make my sepulchre." The subsequent brave defence of Haarlem and Leyden was followed by new disasters threatening the life of the Commonwealth, but this only so intensified the love for freedom that it culminated in the lofty ardor of that grand design of prince and people to give their fatherland with all its hallowed memories back to ocean, and, with their wives and little ones gathered on board the remnants of their once proud fleets, set

sail for friendlier skies and a brighter destiny. But God smote Requesens with fever, and the tide turned.

There is but one other phase of sympathy to which I wish to direct attention. It is that which consecrates the cross. The gospel story is so familiar that a simple allusion to a few of its leading facts will doubtless suffice.

Through the incarnation, which was solely designed for the rescue of a lapsed race, we have revealed to us as nowhere else the resources of an infinite love, the tenderness, the yearning solicitude of the heart of God toward the sinful and suffering of earth. In the magnitude of this condescension and sacrifice we discover his estimate of the worth of the soul's limitless capabilities of virtue and bliss. We have also here an example of what weak man can become through the discipline of struggle when he is overshadowed, as it is ever his privilege to be, by the Divine influence. We of course can never solve many of the mysteries that shroud the nature of Christ, but that he was human we have as incontestable proofs as that he was superhuman. In intellect, sensibility, and will, as well as in body, his powers were at first as germinal as those of any son of Adam, equally requiring the attrition of this world's experiences for their expansion and maturing. Christ passed through no mock childhood; indeed, up to the time of his death, every year witnessed some new growth, revealed some new weakness against which to contend, over which gloriously to triumph. Luke expressly states that he "*increased in knowledge and stature,*" thus affirming of him what is true only of the finite. Christ would never have wept at the grave

of Lazarus had he known that in an hour he would be seated with him at table. The nearness, almost immediateness, of Lazarus's recall to life, the glorious proof the miracle was to give of Christ's mission, the rapturous welcome with which Mary and Martha were about to greet their again living brother, must necessarily have precluded on the part of the Saviour, had he then foreseen the future, the possibility either of sympathetic or of personal grief. It was the *man* whose voice was broken with sobs; it was the *God* whose voice afterward quickened the dulled ear of the dead. He was also evidently full of weaknesses, of constitutional besetments to sin, from whose influences he was never exempt, and to withstand which he summoned moral forces differing neither in nature nor in amount from what he has vouchsafed every disciple. The declaration that he was tempted in all points as we are, necessitates this conclusion. The temptations in the wilderness were possible only to a youth comparatively inexperienced, suddenly made conscious of miraculous gifts which seemed readily convertible into purposes of self-seeking. Selfishness is a species of short-sightedness, promptings to which can never arise in a mind of infinite range. The prayer in Gethsemane, the cry on the cross, betrayed a shrinking, a sense of weakness and dependence, distinctively human. When thus once deeply impressed with the genuine completeness of Christ's humanity, a fact never questioned by his apostles, when led to consider him as our veritable elder brother, then his holiness, his matchless ardor of love, more than excites admiration; it nerves endeavor by kindling hope of successful discipleship, it prepares for

that deep peace that accompanies and rewards the grateful consecration of a life. To draw men thus into sympathetic nearness with himself was also the aim always manifest in the acts and teachings of his ministry. Though within his ready reach lay ease, luxury, learned leisure, high social rank, political preferment, the glory of arms, even the crown of kingdoms, when he found them threatening to thwart this purpose he promptly put from him every tempting offer, choosing rather to be identified with the poor, the illiterate, and the weak, there to work his miracles and there to gather the witnesses of his Messiahship. He thereby made men feel that humbleness of station furnished no barrier to a welcomed and esteemed companionship with himself; that he held in lightest regard the conventional distinctions of society, the classifications which prevailed because of accidents of birth, unequal distributions of fortune, or differences of mental power; that with him right states of heart were the sole passports to favor; that true dignity comported with moral worth, ranking him first who lived the noblest, loved the most. He consorted not only with the poor and illiterate, but with publicans and sinners. Even those whose lives were blackened with guilt, if repentant and believing, were welcomed and forgiven. "Neither do I condemn thee; go and sin no more," were his golden words of encouragement to an abandoned woman. Paradise was promised the thief on the cross. "Go and tell Peter," he especially charged the women who came early to the sepulchre, though that same Peter only the Friday before had denied him with bitter blasphemy. He clothed with becoming dignity the

ever-recurring duties of daily life. He manifested profoundest sympathy for those oppressed with care, filled with weakness, apprehensive of evil, and disheartened by frequent failure. To this intimate acquaintanceship and sympathy he added also a superhuman power to help, assuring his followers that he would ever live their earnest and able advocate with the Father.

Thus by a life of generous sacrifice, possible only in the midst of suffering and struggle, he laid the foundations of a friendship broad as humanity and lasting as the soul.

A little while before his crucifixion he gathered his disciples about him to bid them good-by and give some word of cheer as parting token of his love. At first glance it seems strange he should have there said, "My peace I leave with you," thinking thus to comfort them, for his life had been a fierce warfare, and on his brow had so often stood the sweat and blood of battle; while just behind the lifting curtains of the future lay that night of bitter, passionate pleading, that crown of thorns, that cross of infamy and of anguish. He, too, at this same time, was summoning them to a life of similar toil, privation, and shame. Bonds and imprisonment he knew awaited them. Yet, unless this bequest was meant for cold irony, the hollow laugh of despair, the jest of a man made mad through crushed hopes, Christ's gift of peace must have been both possible and priceless. In exaltation and abiding fulness of joy he must have gone beyond all past human experiences. That joy must have been a present possession, else he could not have bequeathed it. It must have been secured, not despite his sufferings and struggles,

but because of them ; for had he not himself said, “ He that loveth his life shall lose it ” ? That joy must have been within the reach only of those who emulated his sacrifice and reciprocated his devotion, consenting as willingly to die for him as he for them, for had he not also said, “ He that loseth his life for my sake, the same shall save it ” ?

THE KEY TO SUCCESS.

THE whole universe of matter and mind is under the absolute control of exact laws. There is no world too ponderous, no floating mote too minute, to be beyond the reach of these systematic methods of God's working. Leverrier, the celebrated French astronomer, once staked his reputation with all the implicit trust of science on this mathematical precision of the skies. One night in the summer of 1846, at a late hour, he might have been seen, pencil in hand, intently studying sundry papers lying on the desk before him. He was solving the problem of the cause of the perturbations of Uranus. The next morning, over his well-known signature, the Academy of Sciences received the startling announcement that if astronomers would turn the tubes of their telescopes as he directed they would find a hitherto undiscovered planet belonging to our solar system. The tubes were turned, and, sure enough, there shone Neptune, which had till then escaped the notice of mankind. Even the comets that so frighten the untaught by their seemingly wild dashing among the stars, vary not a hair's breadth from the circuits assigned them by unchangeable laws. The poetic fancy of the music of the spheres rests on a fact foundation.

Look at the human eye. How exact is its structure! how exact the laws of refraction which light obeys in giving perfectness to the image it paints on the retina! The surfaces of its little water-lenses are curved with such delicate nicety, and their distances fixed with such precision, that they wholly avoid that spherical aberration which has so long troubled science and compelled learned men, in order to effect its removal from their instruments, to expend millions of money and months of thought.

In the vegetable kingdom are met the workings of alike immutable laws. A series of fractions, whose variations in value are in accordance with the rule of arithmetical progression, determines the position of leaves on plant-stems; the peculiar arrangement of wood-cells shows the veining of those leaves, and their green pulp tells the climate where they thrive, the average moisture of the atmosphere, and the amount of sunlight that reaches the place of their growing. By some strange alchemy, whose secret has been intrusted to them by Him who fixed its unerring laws, those plants convert invisible gases into tinted flowers, change starch to sugar, and turn carbonic poison into wholesome food.

So exact and universal are the laws that govern in the structure of animal organisms, that if you take to a comparative anatomist a fossil bone he will tell the size, weight, and form of the animal of which it once formed part, where it lived, and on what kind of food it was its custom to feed. Tempests and torrents that tear oaks in such fury from the soil where they have been rooted for centuries, volcanoes that light the heavens with their breath and cause palaced cities to stagger like

drunken men, avalanches that rush with thunder-peal down the mountain-sides and sweep the plains with quick ruin,—the very wildest forces in nature,—implicitly obey the dictates of law.

Higher in the scale of existences are found the same systematized methods of working. Metaphysicians give the laws of sequence that control those endless trains of ideas that begin at birth; of association that govern their recall; and of conception which fancy is forced to follow in fashioning out of this rough lumber of the brain its gorgeous palaces of thought. Combinations of colors, proportion of parts, varieties of motion, and succession of sounds, awaken their correspondent emotions with the certainty of fate. Love and hatred that bless and blight the heart, set on fire assemblies, hover over battle-fields to comfort and to curse, are known to work by rule. In brief, search where you will among creations of matter or conceptions of mind, you will find the same immutable laws reaching and ruling all.

Science discovers the laws that underlie phenomena; art uses them. Science discovers the expansive power of steam; art by its cog-wheels and cross-bands compels it to weave its fabrics, print its thoughts, and draw its trains of trade. Science discovers the chemical action of light; art, properly preparing its canvas, seizes a sunbeam and with single strokes of the brush paints pictures that outvie the masterpieces of Raphael that hang on the walls of the Vatican. Science discovers that a compound of nitrate of potash, sulphur, and charcoal will explode when touched by fire; art places the compound into the bore of a cannon and with it

hurls iron balls over ramparts and into the ranks of rebels. Science discovers the chemical affinity of oxygen, zinc, and sulphuric acid ; art lays its Atlantic cables and weaves together the continents of a world. Science discovers the laws of beauty, of melody, and of eloquence ; art goes to the marble-quarry and with mallet and chisel uncovers the Greek Slave's beauty, makes strong men weep while Paganini draws his bow across his violin, and by Demosthenes' famed Philippics breaks the charms of subtlety and turns the tide of war.

Effective geniuses are they who, having diligently investigated, implicitly obey these fixed laws. They readily dazzle the unsuspecting by their seeming miracles of attainment, simply because they alone are cognizant of the existence of such laws. We naturally stand wonder-struck if, entering one of the workshops of the world, and unacquainted with the details of the process, we see rough bits of metal, after passing through various machines and manipulations, changed into Elgin watches, throbbing as if they had souls in them. Equally marvellous is the phenomenon of odd bits of experience, stray snatches of town gossip, neighborhood traditions, cast-away scraps of the street, thoughts and facts that any one can have for the asking, going into the nicely-adjusted machinery of the busy workshop of some trained brain, and coming out golden-orbed and beautiful to please and polish the fascinated thousands. But if we have explained to us the training and drudgery submitted to by that brain through a long series of years, its painful, persistent, persevering efforts, the numberless rules and regulations it carefully sought

out and strictly obeyed, if we are allowed to follow the process step by step, all traces of mysterious mental witchcraft rapidly disappear; its resources of power are found quite attainable. Relative suggestion, the great kaleidoscope of genius, in which the little broken pieces of ideas that are but the trampled rubbish strewn the thoroughfares of unthinking minds are changed into patterns of rarest symmetry, ceases to be a marvel when we discover that its sides are lined with hidden reflectors, and that only by its simple conformity to law it becomes gifted with power.

How the world wondered when, for the first time, a philosopher split a sunbeam with his prismatic knife, and tamed lightnings into post-boys! A gardener drops into the soil a bulb not weighing an ounce, and with scarcely a mark of grace: out steps a white-robed lily whose praises are heard from the lips of the Saviour. A genius plants a seed-thought which, under the operation of laws that never can be changed or monopolized by him, sprouts, branches, blossoms, ripens into fruit.

To secure accurate knowledge of these hidden laws that underlie phenomena, and effectually to practicalize in any field their restless energies by skilled appliances, demand frequently the unremittent industry of a lifetime. Indeed, so filled are biographies of the world's successful workers with instances of persistent painstaking, so seemingly evident is it that their achievements are the requital of sleepless toil, and so uniformly has reward ever followed such persevering effort, that Buffon, one of the most indefatigable and brilliant explorers France ever gave to science, unhesitatingly pronounced patience to be the true touchstone of genius;

John Foster, the great English essayist, named it the faculty of "lighting one's own fire;" and one of our distinguished college presidents, "the power to make efforts." The best definition, however, I have ever found is, "common sense intensified."

On final analysis of the methods of men's working, an enlightened and sustained enthusiasm will be discovered to be that into which all the essential elements of success can be resolved. There must be enkindled an intense longing to realize a definitely conceived ideal; that ideal must appear worthy of any sacrifice; that longing must glow with white heat. There are undoubtedly marked differences in mental endowment in the same department, but those differences prove often more nominal than real, and by serving as incentives secure to the less gifted the more frequent victory. Franklin affirms, "I have always thought that one man of tolerable abilities may work great changes and accomplish great affairs among mankind if he first forms a good plan and, cutting off all amusements or other employments that would divert his attention, makes the execution of that same plan his sole study and business." Emerson, in his "American Scholar," remarks, "The one thing of value is the *active* soul. This every man is entitled to. This every man contains in himself, although in nearly all men obstructed and yet unborn. The soul active sees absolute truth and utters truth, or creates. In this action it is genius, not the privilege of here and there a favorite, but the sound estate of every man." And, again, E. P. Whipple says, "If we sharply scrutinize the lives of persons eminent in any department of action or meditation, we shall

find that it is not so much brilliancy and fertility as constancy and continuousness of effort which make a man great."

Thoroughness, concentration, and courage are the main, distinguishing traits of great men, qualities rather of the heart than of the head, not necessarily exclusive inheritances to be enjoyed by the few, but possible acquisitions in reach of the many.

One of Wellington's chief sources of success was his thorough mastery of details. While in Spain he gave precise directions how the soldiers should prepare their food; in India, the miles per day the bullocks should be driven that were provided for the army. The equipments of his troops were cared for in all their minutiae. The same exactness he introduced into his administration of civil affairs. From his earliest school-days, in every transaction this trait of thoroughness appears. The confidence and unfaltering devotion he thus inspired unquestionably secured him his many and decisive victories. No great commander leaves anything to chance, but seeks to anticipate every emergency and to provide for it.

Gray spent seven years perfecting his "Elegy," which you can readily read in seven minutes. Into it he generously poured the very ripest scholarship, an intimate acquaintance with the rules of rhythm, and an exhaustive study of the varied excellences of English and Latin classics. Every syllable was submitted to closest scrutiny, the cadence of the verse was suited to the character of the thought, every outline was vivid, every tint toned, every picture perfect, before he suffered his poem to pass into print. This palace of

thought was no single night's work of slave-genii obeying the behest of one holding some magical lamp of Aladdin, but was built up, like coral-reef, particle by particle. And this complete mastery of detail was secured only by the most protracted concentration of effort. By resolutely chaining his thought to his theme, completely surrendering himself to its guidance, the inexorable laws of suggestion irresistibly led him back through the past's faded and forgotten scenes in the humble lives of the sleeping cottagers until the scenery and personages of every picture at last brightened and breathed before his mental vision with all the sharply-outlined vividness of real life.

This intense vividness of vision, the sure outcome of mental concentration, is absolutely indispensable to success. Fancy must first paint the canvas before the brush touches it. The Greek Slave stands before us now with no more clearly defined symmetry of form than she did before Powers long ere with the chisel his skilled hand threw off her rough mantle of marble. A celebrated French actor, in order that he might on the stage successfully impersonate the dying, frequented Paris hospitals and narrowly watched each spasm of agony that passed over the faces of those that were in the very act of dissolution, thus gaining a vividness of conception that never left him. Macaulay says, "Dante is the eye-witness and the ear-witness of that which he relates. He is the very man who has heard the tormented spirits crying out for the second death; who has read the dusky characters on the portal within which there is no hope; who has hidden his face from the terrors of the Gorgon; who has fled from

the hooks and the seething pitch of *Barbariccia* and *Diaghignazzo*. His own hands have grasped the shaggy sides of Lucifer. His own feet have climbed the mountain of expiation. His own brow has been marked by the purifying angel." Handel, being asked about his ideas and feelings when composing the "*Hallelujah Chorus*," replied, "I did think I did see all heaven before me, and the great God himself." It is related of him that he would frequently burst into tears while writing, and was once found by a visitor sobbing uncontrollably when in the act of setting the words, "He was despised." Shields tells us that his servant who brought his coffee in the morning often stood in silent astonishment to see his master's tears mixing in the ink as he penned his divine notes. We are informed by the author of "*Credo*" that Foster used to walk the aisles of his church at Chichester often by moonlight and starlight, until at length he wore a path in the solid pavements. He wrestled by the hour in prayer struggling with eternity and immortality and fashioning those mighty sentences which, says Robert Hall, "are like a great lumber-wagon loaded with gold." He used to kneel in charnel-houses and pray the dead to break the silence and speak to him of the Invisible.

Inseparable from these traits of thoroughness and concentration is that of unfaltering courage,—courage to undertake great enterprises, "to scorn delights and live laborious days," to brave public sentiment in faithful adhesion to conclusions of your own thinking,—courage that will not fail even in the hour of last extremity, but inspire you to be lashed as was Farragut to the mast of your battle-ship on the eve of action, or like

the gallant crew of the Cumberland to pour your heaviest broadside on the enemy and boldly flaunt the banner of your purpose just before you go down. It must be the courage of that Switzer of the fourteenth century, Arnold Winkelried, who in the engagement of Sempach gathered to his breast the spears of the Austrian phalanx that thereby he might open a way for the rude hammers and hatchets of his countrymen. It must be such courage as inspired Luther to resolve to answer the summons of the Diet at Worms though he should meet as many devils as there were tiles on the houses; to hurl his inkstand at what he firmly believed to be the veritable Prince of Evil; even to deliberately compose himself to sleep at a time when, as he thought, fiends from hell had passed within his chamber-door and were flitting threateningly about his very bedside.

Cortez, when entering upon that series of triumphs which finally overwhelmed with irremediable ruin the proud throne of the Montezumas and filled Europe with admiring wonder, first resolutely burnt every ship behind him, keenly discerning that by lessening the hopes of retreat he proportionately lessened the chances of failure. Wellington conquered the armies of Napoleon and twice rode victor into Paris, mainly because he was a general who durst carry out his own matured ways of warfare despite the mad clamor of all England, bravely trusting in the laws that governed the temper of the French army, which inevitably fell to pieces when not led to frequent victory; and because he was one who, when the time was ripe, fell like an avalanche on the famed soldiery of France and pressed

his advantage with indomitable will through dangers and difficulties and the most exhausting fatigue.

The quiet walks of literature demand this courage equally with the stirring scenes of national battle-fields. Wordsworth's sublime adoption and advocacy of his own deliberately formed judgment of true taste against the adverse criticism of the entire world of letters, his jeopardizing every prospect of earthly preferment rather than violate his convictions of poetic excellence, demanded as great moral bravery as is required to climb a ship's mast in a storm or face the fire of an enemy.

These traits, thoroughness, concentration, and courage, I conceive to be the three essential gifts of greatness. Without them, no alertness of intellect has ever achieved a work which bears the impress of immortality; with them, rarely need any one despair of accomplishing "that which the world will not willingly let die."

These gifts I further conceive to be but different manifestations of some one master-passion, enkindling and controlling every mental faculty; appearing either as an intense love of the perfect, seeking satisfaction in some acquired excellence, combined with a keen relish and aptitude for the chosen work; or as a thirst for power and fame, akin, in the imperative nature of its calls, to bodily thirst; or else as the soul's nobler devotion that grows out of its warm attachments to home, country, or the cross of Christ. These passions, separate or combined, must be the mainspring of every action; they must be the inspiration of every thought; they must flood the whole life with an irresistible and perpetual

influence. Through them, unlettered and ill-balanced minds have worked wonders in the world. Infuse men of enlightened common sense with their deathless fires, and obstructing walls of adamant crumble at their touch.

The further my researches extend into the private histories of those who have acquired eminence through intrinsic worth, the more am I convinced that an enlightened and sustained enthusiasm has been their real source of strength; that only through its influence have been developed the mighty mental forces that have moulded the character and controlled the destiny of any era; that only intense temperaments working under the stimulus of profound passion could ever have exhibited such exhaustless patience, such concentration of thought, such heroic fixedness of purpose, hunger, ignominy, even death, proving powerless to damp their ardor. What wonder that the world has ever persisted in calling its geniuses its madmen? Prescott, we are told, spent twenty years in the libraries of Europe, collecting from musty manuscripts and neglected letters material for his Spanish histories, and a large portion of that time he was stricken with blindness so that he had to make use of the eyes of another. Gibbon rewrote his "*Memoirs*" nine; Newton, his "*Chronology*," fifteen; and Addison, his inimitable essays, twenty times.

Spinoza and Buckle each spent twenty years in carefully forming and maturing their judgment before they published their systems of thought. For Spinoza, those were years of the most intense self-study; for Buckle, the most exhaustive research into the literatures of all ages and peoples, embracing every conceivable

theme. Those years were by both spent in profoundest obscurity, and bore witness to a patient confidence in the final triumph of labor, to a self-trust and self-mastery that were absolutely sublime.

It is related of Balzac that before he commenced any work of fiction he wandered week after week up and down the streets of Paris, studying phases of character and prying into different modes of life; then for months, excluding himself from all society, he toiled incessantly, perfecting his plot, unfolding the traits of his personages, and polishing his periods. When he came from his retreat a blanched cheek told a tale of utter exhaustion consequent upon such protracted mental struggle. But his untiring industry by no means stopped here. The proof-sheets underwent such thorough revision that the type had to be reset. New sheets, subjected to like ordeal, were blackened with fresh corrections. Again and again this process was repeated, until his fingers were no longer able to hold his pen, or his printer to keep his temper. This author's first books were failures. They either fell unheeded from the press, or were noticed only to be decried. His friends flatly told him he had no faculty for fiction, and attempted to dissuade him from making any further efforts, as they feared that each additional volume would but give wider publicity to his deficiency of gifts. He, however, with undaunted spirit patiently plodded on through years of deferred hope, until by persistent painstaking his struggling genius at last found fit expression. The French public then reversed its verdict and made him its idol.

Montesquieu, speaking of one of his own writings, remarked to a friend, "You will read this book in a few hours, but I assure you it has cost me so much labor it has whitened my hair." Hugh Miller, even while he felt his brain burn with incipient insanity, while his imagination was conjuring up the horrid phantoms that flit before the cursed eyes of the crazed, was so determined to write the last page of that marvellous book, "*The Testimony of the Rocks*," he bent over his manuscripts till long after midnight for weeks together, keeping at bay a horde of insurgent thoughts foaming to hurl reason from its throne, till the work was complete.

Goldsmith's style, famed for its simplicity, being clear, musical, flowing as a brooklet, seemingly artless as a child's talk, was acquired by strict examination of every word, every vowel-sound, every consonant. Burke, who did not enter public life until thirty, and who was one of the most indefatigable of students during those years, on one occasion after holding the Parliament of England for over two hours with one of his masterly arguments on an important national theme, impressively pausing an instant, for five minutes spell-bound every heart with bursts of splendor. After the speech a friend congratulating him remarked, "I thought you had finished, but you extemporized such eloquence as I never expect to hear again." "Ah," said Burke, "that extemporaneous passage, as you are pleased to term it, cost me four days' hard labor, nearly two of which were expended on the closing sentence."

Dr. Harvey spent eight, Dr. Jenner twenty, and Sir Charles Bell forty years, maturing their three famed

discoveries in medical science. Titian painted daily on one picture for seven years and eight on another. Callcott drew forty sketches of his "Rochester" before it met his ideal. Palissy before he won his laurels as a worker in clay was counted a lunatic. So desperate was his resolve that he reduced himself and family to the very verge of beggary. He burnt his scanty furniture, even tore up the flooring of his cottage, to feed his furnaces, but at last out of those hungry flames came the long-sought-for white enamel, and then the rich and titled of the Empire were prodigal of their praises.

Ghiberti, a Florentine artist who flourished toward the close of the fourteenth century, executed for the baptistery of his native city two pair of bronze doors, the bas-reliefs in whose panels were in point of conception and workmanship so masterful that Michael Angelo, in a mood of ecstasy, pronounced them worthy to be the very gates of Paradise. But thus to project in thought and afterward embody in bronze these representative scenes in Bible history consumed forty busy years of this artist's life. His fame, however, has proved as enduring as his works were perfect. From Ghiberti, critics date a new epoch in Italian art.

Paganini profoundly studied the relations of sound to emotion and disciplined his muscles to utmost nicety of movement before he was prepared so wondrously to move and melt his audiences. Raphael acquired liberal college culture, carefully examined the works of great painters, copied hundreds of their designs, spent several years in the study of perspective, personally dissected human and brute organisms, accurately observed facial

expressions, postures of grace and strength, and noted precise effects of tints and shadings on the canvas.

There were thirteen years of untiring effort, of the free outpouring of princely fortunes, and of disastrous failures, before the telegraphic cable, whose grand ideal was first wrought out in the workshop of an American brain, at last rested a signal success on the broad plateau beneath the waters of the Atlantic, binding together the continents of a world. Thirty-three times Field crossed that ocean and fought with tides and tempests. All the accumulations of a successful mercantile life went down, until naught but an unrealized ideal, sustained by an unconquered will, was left him. Twelve of those years were gone. Four times he had tasted the bitter ashes of disappointment. At the fourth trial the distant shores were joined, but the few faint throbbings of electric life served for the succeeding death-hush only as a prelude and a warning. The bonfires went out, and the darkness of the night grew denser. Again he thought at last to grasp the prize; but the imperfect cable parted and in an instant buried itself, and, to all seeming, the hopes of its projector, under the sea. For a moment hot tears fell on the deck of the *Great Eastern*. "It is but a mad attempt at the impossible," was the judgment of mankind. One year more of dauntless striving, and science claimed one of her proudest triumphs and history recorded the name of another hero.

Though Ignatius Loyola was in the full noon of life, without the least knowledge of books, and engaged in a cause demanding the most thorough discipline of the schools; though he was deeply chagrined at thirty-three

years already dissipated in aimless folly, yet, such was his enthusiasm to realize the ideal which he had made the bright espousal of his thought, he gave, now already grown bald-headed, ten toilsome years to study, and kindled in the breast of Xavier and other of his countrymen the same fierce fires of devotion that burnt in his own. Sadly mistaken as was this founder of the Jesuits, despotic and blasting as was the hold of his order on the souls of men, still who can fail to admire, as he turns the pages of Jesuitical history, the wellnigh irresistibleness that lay in that singleness of aim, that full consecration to a purpose, which characterized this earnest man? Garibaldi, the patriot of to-day, who has snatched glad Italy from the clutch of a despot, whether he coasted along the shores of the Mediterranean, or foot-sore and fatigued rested on his arms in the serpent-crowded forests of South America, whether he wept over the thinned ranks of his comrades as he desperately fought for the liberties of a strange people, or fled with a dead wife in his arms before the bloodhounds of power and dug her grave in the desolate pass of the mountains, never in his life was known to forget the enthusiastic vow of his youth, but rather made the rough, rude winds of trouble fan his zeal for country to a brighter and a purer burning.

At the opening of this nineteenth century, in the dungeons of the First Napoleon, Toussaint, the Haytian Liberator, lay dying. The renown of one who had been a slave till fifty the base despoiler of nations envied and durst not let such genius live. In former years across the waters had come tidings of the black warrior and his conquering bands of serfs. When he

entered the arena five armies were in death-grapple, without purpose or plan. Nobly determined to liberate his people, he joined forces with Republican France. Such was his energy in battle, the English were driven from every stronghold; twenty-eight Spanish forts in four days fell before his advancing columns; he maintained against an allied enemy long lines of impregnable defence, successfully besieged St. Marc, and closed the campaign by English capitulation and the retreat of the Spanish forces. Soon after, French jealousy began to burn, kindling against him the mulatto fury, and opening afresh the wounds of civil war, but with firm hand he quelled insurrection, restored order, encouraged industry, and with far-seeing statesmanship gave constitutional guarantees to freedom.

Loyal still to France, he unwittingly sent advices to Napoleon, then First Consul, who, fearful of the rising splendor of the negro chieftain, and uneasy under watching eyes at court, sent against the island thirty thousand veterans and upward of sixty men-of-war, dreaming of easy triumphs and the re-enslavement of a free people. His generals, long drilled in war and fresh from conquests on the Continent, here at last found a master.

The brave blacks at Cape François defiantly burnt the city in their faces and sounded to battle. Napoleon sent Toussaint's unsuspecting sons from their schools in Europe, bearing messages of mingled threat and promise, in hope thus to unman the patriot through the tender love of the father. Could Toussaint violate confided trusts and betray to ruin liberty bought with blood? Following his sublime refusal came that conflict in which ten thousand of Napoleon's trained soldiery

were slain and the disordered remnants of his defeated forces fell an easy prey to the galling fire of mountain marksmen. Outgeneralled in open fight, the French officers, under Napoleon's express command, resorted to cowardly intrigue, professing friendship and promising liberal rule. The African's nobly confiding nature led him into the hands of his captors.

They could manacle the old man's body, but not his thought; could desolate his home, but its clustering associations, comfort-laden, were above the reach of their vandal fingers. Breaking the distant prison's lonely stillness came the accents of a people's benediction; on its darkness fell the radiance of approaching glory. Regal powers had been developed in the conflict; and none could ever rob him of the joy of their conscious consecration to a work of love. Napoleon was taken to St. Helena, followed by the curses of widowed Europe. His death-bed memories wandered vaguely to troubled battle-scenes and faded battle-glory. He had outlived his honor, and for him no brightening promise beckoned beyond the future's lifting curtains.

To such self-sacrificing enthusiasm for country Toussaint owed the development of his marvellous military genius. None of us can know with what possibilities we have been divinely gifted until our lives possess this singleness of aim, this profound consecration to a purpose. Toussaint could have truthfully said, in the beautiful words of the Eastern fable, "I was but common clay till roses were planted in me."

We have but touched upon the romances of enthusiasm with which the pages of the world's history abound. But what need is there of further multiply-

ing instances of the achievements of this wonderfully transforming power? Time would fail me to speak of Hayden and Huber, Milton and Beethoven, who, despite defects in sight and hearing sufficient to have paralyzed any but those of unconquerable spirit, have left acknowledged masterpieces in painting, science, poetry, and music, the four highest departments in human achievement. It is beyond all controversy that it is to the enlightened, persistent, painstaking enthusiasts this world belongs and the fulness thereof. Whence, then, comes this irresistible impetus of zeal? How may it be most readily and certainly attained? Thoroughness, concentration, and courage, the distinguishing traits of great men, I have in this paper maintained to be but different manifestations of some master-passion, appearing either as an intense love of the perfect combined with a keen relish and aptitude for the chosen work, or as an imperative thirst for fame and power, or else as the soul's nobler devotion to home, country, or the cross of Christ. At least some one of these passions must flood the whole life with an irresistible and perpetual influence. There have undoubtedly been effective workers who have been under the sway of but a single one, but only from those in whom they all coexist and co-operate can we look for the largest results.

First, then, our natural tastes and aptitude should, as far as circumstances permit, control us in determining both the nature and methods of our work. There is rarely a sea or a soil, an atmosphere or a zone, which some forms of life do not find congenial. Water-lilies will uncover their rich blooms above swamp-bogs and

mingle their perfume with the poisonous exhalations that rise from fever-smitten districts. Cacti will swell out their prickly sides and astonish us with the rich pencillings of their petals though rooted in the hot sand-plains of the tropics ; the lichen will grow thriftily even on the unyielding face of a rock ; while up through salt depths the sea-weed sends its delicate, thread-like tracery of branch and leaf. Even into the thin, chilled air of mountain-tops, or out of the half-frozen soil of arctic climes, hardy plant-life pushes its way with unconquerable persistence.

So, too, from every available corner of this marvelously peopled world, animals of every variety of structure spring into existence. Earth, air, and water swarm with their myriad life. There is an almost endless variety of conditions in which they are called to subsist, but for each condition some organism presents itself whose wants that condition or environment is exactly suited to satisfy. Within its appointed habitat every plant and animal thrives ; removed from that it droops and dies. The cactus and sea-weed cannot change places and live ; the bluebird cannot lay its eggs, much less hatch and rear its young, in the nest of the stickleback.

This same specialization extends to mankind, and it becomes more marked with each new decade. The world has been steadily progressing from the uniform to the complex. The employments of men, their wants, their capacities, and their tastes, have been multiplying, and are destined still to multiply so long as the evolution of a perfect individualism remains unattained. It is now generally conceded that those who would command success must consent to become specialists and must

choose those callings for which they have marked aptitude and relish. The increasing competitions in trade and the broadened culture of modern times are demanding with emphasis the most skilled products of hand and brain. The consequence is that men get out of place much more easily now than ever before, and the mistake is much more likely to prove serious, perhaps fatal. For plants and animals an all-wise Intelligence and an unbending Will have predetermined their separate vocations; and a most marvellous completeness is noticeable in all their work. The bee, the spider, and the ant are strict specialists under Divine instructions. They are born experts, and their achievements excite at once the admiration and the despair of mankind. It is true their methods and ours not only widely but radically differ, for they require neither experience nor a working model. The fact that they are specialists does not make them experts, but the fact that they are divinely taught. With us there is an ever-growing need to intensify thought by concentrating it, and to train our bodily organs by long practice on some one specific thing. We have each been gifted with a distinct individualism, which should ever be courageously maintained, for only through its healthful development can we secure that originality, or that indefinable personal magnetism, which we all covet and before which we all instinctively bow. If our chosen life-work is to discover truth, we must be in a receptive, suggestive, entirely candid frame of mind, at the same time exercising our individual reason and implicitly relying on its conclusions. The fruits of others' labor can be of benefit only as they are thoroughly mastered and assimilated

by us, only as they are passed through the alembic of our own minds. They must serve simply as stimulants to afterward independent thinking. If we ever strike out new paths, it will be either through discoveries of new facts or through independent courses of reasoning. The latter can be reached only as we cultivate unobtrusive yet firm self-reliance in thought. This demands both a certain self-abandonment and a certain self-assertion. An abandonment, in that the attention must be completely absorbed in the pursuit. There must be a resolute ruling out of all extraneous and diverting subjects, together with such a genuine heart-love for the truth as we find it that we will joyfully become its disinterested, outspoken, uncompromising champions. A certain self-assertion, in that we must habitually exercise, and most positively assert, a greater reliance on our own conclusions than on those of others, and courageously state and stand by them whatever may betide. A precisely parallel argument could be urged in reference to the selection of one's style in oratory or authorship, or, if a life of action rather than meditation be determined upon, in the planning of those campaigns by which one hopes to win his way in the stern world of fact. Only, then, by thus maintaining unswerving loyalty to our inborn individuality, our natural tastes and aptitude, and our own independent convictions of truth and duty, can we attain unto, or permanently possess, that impetus of zeal that becomes inspiration and commands victory.

With this enthusiasm of individualism should also be combined, as we have said, the zeal of emulation. This is too axiomatic to demand any extended proof, or

even any especial emphasis of statement. It is simply necessary to caution against any selfish or meretricious phase of it. No personal advancement not founded upon pronounced personal merit should ever be sought for or accepted. And then when to these two are added, as their crown and finish, that world-embracing sympathy, that self-forgetting love, that "enthusiasm of humanity," as the author of "*Ecce Homo*" happily styles it, which Christ embodied in his life and sought to enkindle in the hearts of his disciples, the soul comes into its best estate of creative energy and accomplishes its most enduring work.

SHELLEY.

SHELLEY was one of those strange dreamers who in some of their idiosyncrasies resemble madmen. The public in their opinion of him have been widely divided. The majority of his cotemporaries pronounced him a bad and dangerous man, while there were a few who loved him almost to veneration ; and such was their intimate acquaintance with the facts and fancies of his life, such their admitted mental ability and undoubted candor, we are forced to respect their opinion, and, if possible, seek its reconciliation with that of the multitude. It is no wonder that such diversity of sentiment has prevailed, so rare is it that in a single brief life there has been crowded so much of wild romance ; that in a single mind there has been linked such puerility with such transcendent genius, such penetration with such purblindness ; that the same heart has been capable of breathing out such manifest tenderness and spotless purity of affection, and also of abandoning, without any outward sign of remorse, a wife and babe, and afterward for a time openly trampling upon every civilized marriage law without shame. Is there a key to his character, or must he forever remain to us a mental mystery ?

Here is a being born with both wings and club-feet. At times he displays peerless powers of flight, striking the stars with his strong pinions; at times he seems an awkward imbecile, stumbling among the stones. Some, dazed by his wings, thought him an angel; others, having first caught sight of his club-feet, suffered the deformity to inflame their imaginations until they believed him a veritable man-monster. Both parties erred, yet each could cite facts in its favor; for of all the human eccentrics that have come to the surface of society, Shelley the most resembled an angel—in ruins.

By a careful analysis of the five prime elements of his character, idealism, individualism, enthusiasm, love, and hope, their morbid development and their intimate interplay, I am confident we can successfully account for any apparent dualism either in his emotions or motives, that we will be able to discover alike in his life and writings a consistency as complete as comports with human frailty.

As an idealist he stands without a superior, perhaps without an equal, in all history; and his creative faculty was marvellous not only for its strength but its strangeness. The phantoms of his thought were often such weird ghosts and so sharply outlined, he fled from them in the wildest terror, convinced that they were fixed facts outside the brain rather than flitting fancies within it. The earliest recollections of his boyhood are full of this trait. The ceiling of a certain low passage in the old homestead was riddled with holes by the stick of this little mischief in search of some new chamber where the strange folk of his fancy might find suitable apartments. The boy used to gather his sisters about him when they

were but wee things, and hold them in rapt attention with his impromptu tales of fairy wonder. They were told that the deserted garret was the laboratory of an alchemist who had been living up there alone so long, busily bending over his retort and crucible, that his beard had turned white and the world had forgotten him. They waited with all the confidence and keen anticipation of young life for that promised "some day" when they should visit him, and perhaps take a sip of his elixir or fill their hands with gold he was then learning to make. All the queer noises about the premises were distinctly traced to the great tortoise in Warnham Pond. The myth of the old snake that haunted the garden for upwards of three centuries till carelessly cut in two by the scythe of the gardener received as grave a rehearsal as if it had been an historical fact. By the magic of grotesque costumes he would change his sisters into ghosts and hobgoblins, then with them marching behind him would wave a fire-pan over his head with flames bursting dangerously from every crevice, himself the arch-fiend breathing forth the fire and smoke of the pit. He was accustomed to frequent the charnel-house of Warnham church, and await the return of lonesome spirits to look in upon the crumbling dust they once tenanted. These visits were by no means without fear, but the fancy of falling in with such strange company fairly infatuated him. When a school-boy at Eton he was known time and again to steal out of his boarding-house with all possible secrecy and cross the fields at the dead hours of night until he reached some running stream, then, standing astride it, three times to drink of its waters out of a human skull,

in hopes through such incantations, taught him by his glamour books, to get a glimpse of the devil and perhaps pass a word with him.

The incredible quickness with which he mastered his studies left him abundant leisure to give loose rein to his unpractised fancies, and they soon whirled him along at perilous speed. Diffidence, acute sensibility, love of study, with lack of robust health, totally unfitting him for social excitements, he naturally at the first attempted to repair the loss with the haunted castles and the bandits of the story-books that came within his reach. The Terrific, in all its indefinable forms, vague hints of that dim borderland of mystery that lies just beyond the real and the seen, seemed to weave a spell over his turbulent spirits. In his night rambles he sought out unfrequented places, attended only by such wraiths and apparitions of the imagination as the genius of a Coleridge, a De Quincey, and a Poe has made imperishable. The few fragments that have floated down to us of the poems and prose fictions that he wrote in the dark days at Eton bear unmistakable impress of the morbid intensity and dangerous leanings of his mind; while through their crudities at times break prophetic gleams of that sublimation of thought and marvellous splendor of diction that characterized his later works.

His brain and his nervous system were of the most delicate texture. The microscopic machinery of that butterfly to which Hawthorne's "Artist of the Beautiful" gave a momentary mimic life was not less suited to the world's unthinking baby-clutch. They both ought to have been kept under glass. In one of his letters he remarked, "My feelings at intervals are of a

deadly, torpid kind, or awakened to such an unnaturally keen excitement that, to instance only the organ of sight, I find the very blades of grass and the boughs of distant trees to present themselves to me with painful distinctness." Grating sounds gave him positive torture. An amusing instance is related of him, illustrating this. Christie, an untidy Caledonian girl, was servant in the house in which he and his first wife were once boarding. Some of his friends, knowing his weakness and fond of a joke, would draw the girl into conversation that they might see Shelley writhe under the sound of her harsh voice. "Have you had any dinner to-day?" "Yes." "And what did you get?" "Sauget heed and bannocks," would be her invariable piping reply. The poet, almost distracted, would rush into the corner and stop his ears. "Oh, Bysshe, how can you be so absurd? what harm does the poor girl do you?" "Send her away, Harriet," he would gasp; "oh, send her away! for God's sake, send her away!" How vividly these facts revive Poe's picture of that remarkable recluse who played so tragic a part in "The Fall of the House of Usher"! Occasionally Shelley fell a victim to somnambulism, and there was a sort of waking dream in which he often lay wrapped. He would start from its spell trembling like an aspen-leaf. His eyes would flash and his thoughts grow strange and spiritual. This was no nightmare. It was no ordinary fit of abstraction. It was that dangerous ecstasy when the impatient soul steps upon the threshold of its tenement of clay and thinks of flight.

There is a prose fragment of his in which he describes a by no means extraordinary scene. At the close he

says, "I suddenly remembered to have observed this exact scene in some dream of long ago. Here I was obliged to leave off, overcome with thrilling horror." "I well remember," remarks Mrs. Shelley, "his coming to me from writing this, pale and agitated, to seek refuge in conversation from the fearful emotions it excited." While in Italy, near the close of his life, he was one evening walking with his friend Williams along the terrace, watching the play of the moonbeams on the water. Complaining of unusual nervousness, he suddenly and with great violence grasped the arm of his friend, and fixed his eyes in a wild, frantic stare on the white surf that broke at their feet. Williams, seeing him thus agitated, asked whether he was in pain, but he only answered, "There it is again!—there!" After the paroxysm had passed, he stated that a naked child had just risen from the sea, smiling and clapping his little hands at him. The vision of this trance was so intensely vivid, it required no little philosophical argument on the part of his friend to convince him it was only a dream, and to call his crazed thoughts back to the sad reality that his dear boy lay under the daisies still.

Once Byron, Shelley, Monk Lewis, and the ladies of their households were accustomed, under Lewis's leadership, to spend their evenings in telling ghost-stories. The fictions were not only original, but impromptu. They were meant but for mental gymnastics, simply to serve as wings for the hours. It was a brilliant circle, and out of the murky atmosphere of these talks there came to Mrs. Shelley the first hints of her famed "Frankenstein." As might have been anticipated, Shelley's fancy finally fired, and before its fierce heat

his reason melted away like wax. It is told us that on one of these occasions he began a story, but was soon compelled to stop and hasten from the room. One or two of the company followed him out, and found him in an almost complete nervous prostration. After he had somewhat recovered, he said to them that a most beautiful woman had appeared to him, leaning over the balustrade of the staircase and fixing upon him four flashing eyes. As some one has suggested, his mind was of such exquisite delicacy it seemed throned on the very pinnacle of genius, where but a breath might precipitate its fall.

He was doubtless the victim of hallucination when in North Wales he thought a night tramp had fired at him. He kept the house in an uproar until morning. On the next day he even went so far as to furnish the officers of the law a sworn statement of the case, gravely detailing many particulars, and as soon as it was possible fled the country. In his correspondence with William Godwin we find him claiming that he had been twice expelled from Eton on account of the advocacy of his beliefs. The story was utterly false; but I see no reason for charging him with intentional falsehood, as has been done, for he was proverbially truth-loving, standing ready even to suffer martyrdom for its sake. We have seen with what readiness and frequency he converted his intensely vivid fancies into accredited facts. It was perfectly natural for this strangely-gifted boy to first imagine himself a bold defender of his beliefs and visited with the wrath of the bigots, then afterward to look upon his visions as memories of what had actually occurred.

As a writer he stands without a rival in his power to impersonate thought. The multitudinous gods of ancient mythology, which were the creations of long centuries of misguided worship, scarcely outnumbered that vast company of intelligences with which his fruitful fancy peopled the universe. Everything as it passed through the alembic of his mind was refined into a splendid ideal. The material stood to him but as a manifestation of the spiritual. Not only the forces in nature, but even the most subtle metaphysical discriminations, became palpable personages before him. On every page of his principal poems, except the "Cenci," in almost every line, they start into life. In the "Witch of Atlas," in "Adonais," and in the last acts of "Prometheus Unbound," his creative powers seemed to culminate. To the many these Alpine peaks of song are lost in cloud. Few have ever climbed their dizzy heights; none have ever seemed able to live long in their thin air. I had designed to transmit to my page some of their marvellous creations, but on making the attempt I found them dissolving at my touch like crystals of frost-work.

Byron pronounced him the most imaginative writer of his time, and this criticism acquires peculiar emphasis from the fact that Shelley was the cotemporary of the Lake poets. Macaulay asserts that inspiration can be more safely affirmed of him than of any other English author. His mind, while he was engaged in composition, boiled like a caldron. So great was the intensity with which it wrought, his body shook as in an ague-fit. Bayne, the Scotch critic, claimed that his was the princeliest imagination that ever sublimed en-

thusiasm or personated thought. Gilfillan called him the Eternal Child, and Mrs. Browning alluded to him in her "Vision of the Poets," and her words are pregnant with meaning, as one "statue-blind with his white ideal." Shelley lived in perpetual childhood. Its life-like illusions seemed woven into the very texture of his brain. Neither his face nor his faculties ever grew old. His kingdom was cloud-land. He was a stranger, ill at ease, in any other.

We now pass to the consideration of his second marked characteristic, his individualism. Scientists have discovered a single plan underlying nature, certain fundamental ideas or great types introducing order and unity everywhere; so that now in their text-books they go back through individuals, species, genera, orders, to the first great classes of creation. This methodic development, this prevalence of law, they have found even in the subtlest of human thought. But they have further discovered that creation was not the work of an instant, but the evolution of ages; that an impulse or a series of impulses toward heterogeneity has been imparted to all things, unfolding from this initial unity an infinite variety, rendering life-forms continually more complex, from the monad up to man. The vigor of this impulse still remains unabated; for through it comes that individualism in whose healthful development, and in that alone, this broad plan in nature reaches final consummation. In the present stage of advancement, although there are no two men who exactly resemble each other, who have no distinguishing personal traits, yet, with the majority, points of resemblance rather than of difference predominate. Out from these

mainly homogeneous masses, however, there now and then appears one of overmastering individualism, breaking through the conventional crusts that have gathered upon human thought. They are the revolutionists God lets loose on the planet. They usually come with superabundant personal positiveness and singularity. Were it not so, I question whether they could command a hearing. Not only must their personal tastes and opinions be unique, but there must be an implicit faith in their soundness, an exalted view of their value, above all an inward, irrepressible impulse to state and stand by them at every hazard. This impulse must be of such a character that opposing prejudices will but fan it to fiercer heat. Only those thus possessed have ever met success, or ever can. Others endure for a time, but at last sink down among the undistinguishable atoms of the mass. With this individualism Shelley came surcharged, so that when society used harsh means to repress it, it found an infuriated tiger upon its track.

When a beautiful, bright boy, eager to know, sympathetic, sincere, quivering with acute sensibility, his head already in the clouds, his health by no means firm, he was thrown in among a wild troop of school-fellows at Eton. In English schools a pernicious custom then prevailed of forcing members of the lower class to perform menial services for those in the higher. Fagging, as it was called, had grown into a system of petty tyrannies. Readers of "Tom Brown at Rugby" will readily recall Hughes's spirited sketch of his hero's gritty fight with an insolent chap in the fifth form, who had presumed too much under cover of this custom. Shelley, when called upon to fag, peremptorily refused,

not because he was averse to labor, nor because his father was a baronet, but he looked upon the demand as an invasion of his personal rights. Then they tried what virtue lay in cuffs and taunts. Instead of breaking his spirit, they kindled it into fury. Those braggarts turned pale and grew weak with fear before his bursts of passion. The war extended over many months and numbered many battles; but he conquered at last, though the bitter experiences of those days, his loneliness and sense of wrong, burnt into his soul like a hot iron. His touching lines at the opening of "*The Revolt of Islam*" tell us that twelve years afterward this wound was still painful and bleeding. An old Etonian remarks, "For years before I knew that Shelley the boy was Shelley the poet and friend of Byron, he dwelt in my memory as one of those strange, unearthly compounds which sometimes, though rarely, appear in human form. He was known at Eton as the mad Shelley. Sometimes his rage at their taunts became boundless. They fairly raised the demon in him. I have seen him surrounded, hooted, baited, like an enraged bull, and at this distance of time—forty years after—I seem to hear ringing in my ears the cry which Shelley was wont to utter in his paroxysms of anger."

When a student at Oxford, he unfortunately fell into the hands of English and French atheists, who stripped him of nearly every opinion of value. That Shelley could have become a convert to creeds so cold, so humiliating, so abandoned of hope, strikes one at first as a mental impossibility. The natural temper of his mind was, as we have seen, profoundly idealistic, his thoughts revelling in the unseen. Rarely one ever

evinced such capacity for companionship; none ever more intensely longed for it. Dulness and brutality had already driven him into social exile, so that almost the only avenue to sympathy left him lay through this, his wonderful gift of spiritual perception. In what especial need, then, he stood of some comforting consciousness of the presence of angels and the kindly overshadowing of the Divine love! He also had the credit of sharp discrimination. His writings everywhere abound in delicate shades of thought. He undoubtedly possessed a taste for abstruse reasoning, for he once seriously debated whether he should not adopt metaphysics for a life-study.

Hogg, his college companion, attempting an explanation, offers two suggestions: first, that scepticism, seemingly uncongenial to one of fervid imagination, had attractions for him perhaps from the fact that he took such keen pleasure in discussion and found in this so admirable a position for defensive warfare; second, that destruction, if on a grand scale, is as fascinating as creation to one loving excitement and change. I cannot take so low a view of Shelley as to feel satisfied with this solution. There is no doubt that he loved disputation, and that he loved excitement and change; but he loved truth more. He was of too sad and earnest a temperament to argue against his own convictions. His afterward life-long loyalty to them proved him no trifler. The growth and gradual settling of his beliefs speak volumes for his mental integrity. To lean Samson-like against the pillars upon which rests the world's religion, that he might for an instant hear the crash of falling timbers, would indicate a curious love of excite-

ment in one conscious that his own hopes as well as those of others must lie buried in the ruins.

Coleridge's thoughts went deeper. In a letter to a friend he remarked, "I think as highly of Shelley's genius, yes, and of his heart, as you can do. Soon after he left Oxford he went to the Lakes, poor fellow, and with some wish, I have understood, to see me; but I was absent, and Southey received him instead. Now, the very reverse of what would have been the case in ninety-nine instances of a hundred, I might have been of use to him and Southey could not; for I should have sympathized with his poetic, metaphysical reveries, and the very word metaphysics is an abomination to Southey, and Shelley would have felt that I understood him. His discussions tending toward atheism would not have scared me; for me it would have been a semi-transparent larva, soon to be sloughed, and through which I should have seen the true imago, the final metamorphosis. Besides, I have ever thought that sort of atheism the next best religion to Christianity; nor does the better faith I have learnt from Paul and John interfere with the cordial reverence I feel for Benedict Spinoza. As far as Robert Southey was concerned, I am quite certain that his harshness arose entirely from the frightful reports that had been made to him respecting Shelley's moral character and conduct,—reports essentially false, but, for a man of Southey's strict regularity and habitual self-government, rendered plausible by Shelley's own wild words and horror of hypocrisy."

But, explain his conversion and profoundly regret it as we may, his course afterward was not only highly

characteristic, brimful of individualism, but was prompted by motives from which it is impossible for us to withhold our praise. As soon as he had given his assent to the creed of the atheists, he resolved on the overturn of the entire Christian world, and even hoped for it. Of course only a boy in his teens, and a boy, too, with his peculiar combination of qualities, could have conceived of such a Quixotic scheme, or have entertained it for an instant. He began his work as a propagandist with the issue of a two-paged pamphlet on the "Necessity of Atheism," sending a copy with a circular letter to the twenty-five heads of colleges at Oxford, asking their assent to its sentiments. Those grave scholastic dignitaries replied by ordering his instant expulsion. Perhaps they meant well, but their conduct was certainly inexcusably inconsiderate. It was in great part the result of that revulsion of feeling that had swept over Europe at the close of the French Revolution. The curdling horrors of that reign of license and irreligion had caused an indescribable dread to creep into the public mind. A severe censorship, in consequence, rested on platform and press. We have since discovered that this stifling process was the very cause of the evils it now sought to avert. Had one of those panic-stricken professors taken the pains to visit Shelley in private, considerably listened to his objections to Christianity, and met them with the proofs, as Coleridge would have done, he would have found in him an apt and candid scholar, and without much question would have won over to his cause an earnest and able advocate. None was ever more open to conviction. He craved knowledge, was of reflective habit.

His intellect was marked alike for its strength, its compass, and its integrity. Though of deep convictions, his restless spirit of inquiry always saved him from becoming opinionated. He strongly inclined to religious thinking. Indeed, what Novalis once remarked of Spinoza, that branded atheist, who so deeply impressed him with his religious fervor, I believe was equally true of Shelley. He was "God-intoxicated." To know truth and fearlessly to use it, had grown into an enthusiasm; and that very act which called down on him such wrathful lightnings was one of its unmistakable signs.

To none would an appreciative sympathy have been more welcome; upon none would it have wrought greater good. That his life had been singularly pure, even his bitterest enemies durst not deny. Being still very young, only eighteen, of slight experience, with an immature judgment, with no fixed habits of thought, radical changes might readily have been wrought in his beliefs. Nothing but excessive fright could have induced these learned men of Oxford to let slip this golden opportunity. They must have adjudged him smitten with incurable leprosy, to have thrust him out with such cruel haste, branding him with all the ignominy that lay within the bestowal of one of the most powerful corporations of learning in the world. A German university would have taken up the gauntlet which Shelley thus threw down, and not have suffered his belief in the impregnability of his position to become confirmed by so cowardly an answer as he here received.

The boy, thus rudely rebuffed, sought an asylum in

his father's house, and should have found one. But the cold formalist, mainly interested in keeping the outside of the platter clean, sternly rebuked him, giving him to understand that unless he conformed to the religious usages of the family he must never again step foot on his threshold. Shelley, loyal to his convictions, promptly refused, although he knew that disgrace and poverty would join him company. If the doctors blundered, the father surely fell into crime. Granting that the boy was the most impracticable of dreamers, and that had his dreams come true the moral world would have passed into eclipse, yet the fact that he was a mere boy, and nobly aimed at benefiting his age, should have summoned to his side the kindest influences of home. Yet he was left upon the streets of London, to battle single-handed as best he could. It was a sad sight.

Shelley's individualism, already strongly marked, now passed at once into blind frenzy. Indeed, it would seem that he never afterward fully recovered his right reason. "Queen Mab," begun a year and a half before as a purely imaginative poem on dreams, he at once converted into a systematic attack on society, doubling its length and appending to it elaborate notes, in which whatever law or custom tended in the least to restrain the fullest personal freedom was passionately condemned as tyrannical. This delicately-nerved dream-creature, thus trampled on by professing Christians, tortured but not tamed, learns to regard Christianity as the foster-mother of crime, an organized oppression drenching the earth with the blood of innocence. Obedience to God he pronounces the servility

a trembling slave pays a tyrant. As all religions threaten punishment for disbelief, a purely involuntary act, they, he claims, should all alike pass under condemnation. There is no personal Creator. Vulgar minds had mistaken a metaphor for a real being, a word for a thing. There is at best but an impersonal, pervading spirit, coeternal with the universe. Necessity is mother of the world, true liberty a mere shadow, a myth, a fable. Crime is madness, madness a disease, disease the sole result of meat diet. Prometheus chained to Caucasus personates mankind, who, having applied fire to culinary purposes, or, in other words, having changed the character of their food, have become the helpless victims of the vulture of disease. Wealth is a power usurped by the few to compel the many to labor for their benefit. The rent-rolls of landed proprietors are pension-lists, signs of sinecures, which reformers should no longer suffer to exist. Laws which support this system are the result of the conspiracy of a few, and would be swept from the statute-book were not the masses ignorant and credulous. Law even pretends to control the intercourse of the sexes, in face of the fact that the very essence of love is liberty. Marriage is utterly unworthy of toleration. As well bind friends together by statute as man and wife. The present system of constraint makes hypocrites or open foes out of the majority of those thus bound. "In fact, religion and morality, as they now stand, compose a practical code of misery and servitude; the genius of human happiness must tear every leaf from the accursed Book of God, ere man can read the inscription on his heart.

How would morality, dressed up in stiff stays and finery, start from her own disgusting image, should she look in the mirror of nature !”

Thus we see Shelley pouring out invectives against every form of religious faith, against every safeguard to property or pure morals,—an indiscriminate iconoclast, an agrarian, a free-lover, a fierce foe to all present forms of social order.

His mind cooled somewhat in after-years, as his life grew more tranquil. Some of his views he modified ; some, totally changed ; some, however, he carried into practice and tenaciously maintained until death. He lived to advance as far as the Unitarian creed, and to be a firm believer in immortality. Such was the drift of his thought, such his increasing study of the Scriptures and unfeigned love for them, his natural candor, his tireless search for truth, his profound respect for the character of Christ, it is by no means improbable that had a few more years been spared him, and they warmed and lighted by sympathizing hearts, his respect would have turned to love, perhaps to adoration.

His opinion of marriage underwent little change. Had he followed his own inclinations, he would have lived with both Harriet and Mary without its sanction, utterly regardless of the world’s opinion. He consented to its rites, not because he quailed before the approaching storm of calumny, but because principally upon them, being the weaker party, it would spend its violence. Even as it was, he and Mary lived together a full year without it, before Harriet’s suicide secured him the divorce refused by English law. Shelley’s idealism and individualism, originally given in such

large measure, now almost preternaturally developed, render it possible, in my judgment, for Shelley to have been prompted by the purest motives in both the advocacy and practice of principles which, if generally adopted, would have corrupted and finally overturned society.

I now pass to his third most noticeable trait,—his enthusiasm. In this, too, from the first he stood pre-eminent; and in this, I regret to add, there soon appeared symptoms of disease.

The instances in his life which I have already given under other heads equally illustrate the intensity of his temperament; and so intimately is it also associated with his capacities to love and hope, that it will again appear when I treat those divisions of my theme. But there are certain phases demanding a more special notice, and to them I now briefly direct attention.

His passion for boating was very remarkable. It was as impelling and as indestructible as any instinct of bee or beaver. It appeared first in the making and floating of paper boats. Whenever he approached any little pond in his rambles, he would linger about its margin by the hour, held as by the spell of enchantment. The keen wind sweeping across the common would cut his delicate face and hands, and cause his frail body to tremble with the cold; but with thoughts undiverted he would keep on twisting his bits of paper into tiny crafts. These as fast as finished he would launch, watching them with absorbing interest as they drifted away until they either capsized, or sank water-soaked, or safely landed on the opposite shore, his imagination meantime transforming the pond into a rough

rolling sea, and his bits of paper into stately ships wrestling with tempests or dashing upon rocks, or safely riding at anchor at last in the offing of some foreign port. He always had one or more books in his pocket; and, however expensive the volume, its fly-leaves, although he never disturbed the text, were prized only as excellent ship-timber; and it was utterly impossible to entice him from the spot so long as there was an available scrap of paper about his person. While residing at Bracknell he found a whimsical gratification for this mania for navigation,—secretly setting sail on a stream near by in one of the tubs of his hostess. Its bottom falling out, he launched a second, but, this meeting a similar fate, a third was launched from its ways in dry-dock, until there was not a single one left. Washing-day came. A search was made for the missing tubs, but in vain, for this strange mischief-maker had disappeared as well as his strange fleet.

A large portion of his life he spent on the water. There he found health, and freedom, and lightness of heart, and mental exaltation. His poems abound in river-scenes, and scenes on the sea; some of exceeding wildness, as in “*Alastor*,” some, as in “*The Witch of Atlas*,” bathed in a beauty so ethereal it would seem that the artist, in some privileged hour of inspiration, had dipped his brush in the light of other worlds. “*The Revolt of Islam*,” one of the most elaborate of his poems, he composed as he floated a half-year alone in his skiff on the Thames, reclining under alder- and willow-fringed banks, or taking refuge at noonday on some of the little islands that had until then nestled unnoticed in the lap of the river. Frequently he

would spend whole nights in his boat. This passion, however, proved fatal at last; for Shelley, having set sail from Leghorn for Lerici on his way to welcome Leigh Hunt to Italy, accompanied only by a single friend and a sailor-boy, was overtaken by a sudden squall which whipped the waters into fury, and the little skiff so preciously freighted soon fell an easy prey to the hungry sea.

In conversation he was remarked for his impetuosity. There was a sort of contagious eagerness, an animation, at times a wild rapture, in his talk. Among congenial friends he knew no reserve. His inmost life lay bare before them. Indeed, had his soul been cased in clear crystal it could not have been less concealed. His brain seemed on fire, for his blue eyes would flash, his cheeks crimson, his whole body tremble with pent-up emotions struggling impatiently for outlet, although his thoughts at the time were flowing in headlong torrent from his tongue. I speak without exaggeration. It is said that man is a microcosm. If nature's volcanic eruptions, with their earthquakes and hot, steaming lava, ever found their human analogies, it was in some of these impassioned outbursts of Shelley. His readiness of speech was equalled only by its finish and fulness. He spoke with ease and precision on the most abstruse themes. His ordinary conversation had a poetic flavor about it, for nothing seemed to appear to him except in some singular and pleasing light, and his extremely mobile face glassed his thoughts as perfectly as does the lake the woods that border it, or the clouds and birds that float and fly above its surface. Had he written as he talked, he would never have lacked readers. To all

this there were added a frankness, a fearlessness, and a forgetfulness of self rarely met with in social life, and these are each important avenues of communication. Such large capacity for utterance no doubt greatly helped the combustion of his thought. Smothered flames die. To live they must be granted access to the oxygen of the outer air.

When in conversation, so lost was he to all surroundings, so under the sway of his enthusiasm, that his tea, of which he was very fond and drank largely, would go dripping from his shaking hand down his bosom upon his knees, into his shoes, on the carpet, and thus cup would follow cup in almost endless succession. It is recorded of him that he would frequently hold his auditors spell-bound through the entire night. Those thus charmed by him would at daybreak start up in perfect wonderment at the unconscious passage of the hours; and what is mysterious about it is, there would be left in their memories, after the strange fascination was ended, little else than a vague sense of extreme delight, the whole scene having vanished like the fabric of a dream. There was at times something wild and unearthly in his talk, a startling abruptness in its commencement and ending; so much so that Mr. Maddocks tells us that he was impressed by him as by the coming and going of a spirit.

In his pursuits as a scholar his enthusiasm knew no bounds. He always seemed to have a book in his hand, whether at the table, on the street, in the fields, or in bed, drinking in its contents with an avidity and a quickness almost incredible. It is said of him that he could read from six to eight lines at a single glance.

Although we cannot give credence to this report, yet it serves to show that he seemed to others to grasp thought as by intuition. Such was his facility as a linguist, he would read the Greek philosophers in the original for hours without the use of a lexicon, and with the French, Italian, and Spanish languages he was equally conversant. Homer, one of his favorite authors, he read, re-read, and read again, no one knows how many times, always keeping a copy within reach. Ariosto was also to him a fountain of perpetual pleasure. He indeed approached the works of all the master-minds of antiquity with a most profound reverence; and, however abstruse and subtile their reasonings, his mind never grew weary, so intense and so insatiable was his desire to discover truth. From a very early age he evinced for the study of physics great aptitude and relish, and pursued it with unbounded ardor. It was not until he had entered Oxford, had suffered from an explosion, had taken arsenic by mistake, and wellnigh ruined his books, his furniture, and his clothing with chemicals, that he threw aside retort and test-tube, and set at work with the same characteristic fervor to disentangle those endless gossamer threads of thought metaphysicians take such delight in spinning. While thus engaged, he embraced among other theories the Platonic doctrine of pre-existence. The wild warmth with which he welcomed his new creed came out quaintly one day while he was passing along Magdalen Bridge. A woman met him with a baby in her arms. He at once dexterously snatched it from her, greatly alarming her by his abruptness. In high tenor and with eager looks he asked, "Will your baby tell us anything about pre-existence,

madam?" At first she made no reply, thinking him insane; but, seeing that the queer man meant no harm, and Shelley repeating his question with the same vehemence, she said, "He can't speak." "Worse and worse!" cried Shelley, greatly disappointed; "but surely the babe can speak if he will, for he is only a few weeks old. He may fancy perhaps that he cannot, but it is only a silly whim. He cannot have forgotten entirely the use of speech in so short a time: the thing is absolutely impossible." After the answer of the mother that she had never heard him speak, nor any one so young, Shelley patted the boy's cheek, praised his rosy health, and passed him back to his mother, remarking, as he walked away, "How provokingly close these new-born babes are! but it is not the less certain, notwithstanding their cunning attempts to conceal the truth, that all knowledge is reminiscence. The doctrine is far more ancient than the times of Plato, and as old as the venerable allegory that the Muses are the daughters of Memory; not one of the nine was ever said to be the child of Invention."

But we must go to some of those poems with which he has enriched our literature if we would see his enthusiasm at the flood,—to that drama of "Hellas," to those Odes to Naples and to Liberty, to the songs of triumph which constitute the closing act in his "Prometheus Unbound;" for here there are rhapsodies, and choral melodies, and lyric bursts, such as could have come only from a soul in transport. A glory of transfiguration rests upon his thought. In such rapt moods his face must have shone as the face of an angel. In his "Hymn to Intellectual Beauty" he appears, strange

as it may seem, in the rôle of a religious enthusiast. It is true that in his attempts to rid his conceptions concerning God of all anthropomorphisms he has fallen into vagueness, leaving us an ideal which, while whiter than Parian marble, is also, alas! more cold; yet his worship is no less devout than was Ignatius Loyola's. His heart burns with the same fierce fires of devotion. There is the same chivalric zeal, the same exhausting vigils, the same importunate prayer.

We have thus far found Shelley a highly imaginative, sensitive, positive, volatile creature, singularly unsuited to the circumstances in which he was placed. No wonder his enthusiasm soon became diseased. His mind was not of a judicial cast. There was not the first characteristic of a trimmer about him, even taking that word in its best sense, as given by Halifax. He was by nature a radical, an extremist. No fear restrained him, no constitutional conservatism, not even common-sense caution. He loved truth better than he loved life. He fairly famished for it. Indeed, driven by his intense hunger, he committed the grave error of overloading his faculties until their action became dyspeptic. Impressionable, sincere, simple-hearted as a child, he inconsiderately gave assent to theories that would not for an instant bear the test of dispassionate logic, simply because they were specious, ably argued, and apparently tended to ameliorate society. As soon as accepted, his imagination threw upon them its strong calcium light, and they at once assumed a brilliancy and a coloring not their own.

Persecution stepped in only to enhance their value and confirm their truth. His enthusiasm ran wild.

His pursuit was too eager, and he was too elated over what he chanced to find. His precipitancy blinded him. Hotspurs can never become successful discoverers in the domain of philosophy.

To this same disposition we can trace the cause of his restless wanderings from place to place, like his own Ahasuerus. Each locality was successively selected for his permanent home. There, as he used to phrase it, he was to live forever. But he was no sooner settled than a new plan, suggesting itself, carried everything before it, and he would again start on his travels. His departures and arrivals were always precipitate, usually from excess of enthusiasm. To this also we can trace the exceeding crudeness of his plans for social reform, his championship and abandonment of Irish liberty. His first marriage, which terminated so disastrously, resulted from the sudden adoption of the suggestions of his sympathy. It was no love-affair. A pretty girl came to him with a most pitiful tale, and to help her out of trouble he gallantly, but with fatal thoughtlessness, helped himself, and her too, more deeply in.

Shelley's fourth most noticeable characteristic was the strength and breadth of his sympathies. They were cosmopolitan; he was a born philanthropist. He profoundly pitied the unfortunate, making their cause his own. He lavished his income, sacrificed his ease, endangered his health, to compass his purposes of love. Although his name was cast out as evil, and an almost universal social ban rested upon him, his philanthropic zeal never abated. He set out on his last sail on the sea that he might the sooner welcome to Italy one whom

he had already helped out of hopeless debt by a princely donation. His body was washed ashore on the coast of Tuscany, and, in conformity to quarantine regulations, was by his friends reduced to ashes. These were deposited afterward in the Protestant burial-ground at Rome at the foot of a moss-grown tower near the remains of poor Keats, his illustrious but ill-starred countryman, in whose poems, a copy of which was found open in his pocket, he had evidently been seeking solace and inspiration just before the storm struck him. On his tombstone appears the simple inscription, "*Cor cordium.*" No more fitting tribute could have been paid his memory.

His acts of benevolence beautified and brightened almost every day of his life. It seemed impossible for him to witness distress or hear its story without instantly planning its relief. One day rambling in the fields he met a little girl bewildered and shivering with cold. It was not long before she was sitting on his knee, drinking a bowl of warm milk which he had purchased for her at a neighboring farm-house. Frequently at Hampstead, in mid-winter, while on his way to a coach-office to take passage, he would encounter some poor unfortunate, and after listening to her pitiful tale would empty his pockets of his last shilling and cheerily start off on his journey afoot. Once, on his way to a friend's residence, he noticed in the street a woman limping with bare feet over the stones. He quickly slipped off his shoes and pressed them upon her acceptance. His cashier was called on to honor order after order for small amounts issued to beggars who had approached him after the resources of his purse

had become exhausted. On a certain occasion he found a courtesan lying helpless by the roadside, thrust out from some brothel by the heartless wretches who had shared her shame. Unwilling to see even this social castaway abandoned to her fate, he carried her on his back a considerable distance to a place of shelter. He visited the poor lace-makers at Marlow in their damp and fireless abodes, distributing blankets, coal, food, and medicine according as they had need, even tenderly nursing them in their sickness. It was while watching in one of these hovels he caught ophthalmia, which nearly cost him his eyes. He once walked a hospital that he might become a more efficient nurse. He was on one occasion spending a little time in North Wales, where his friend Maddocks, who was then in England, had built an embankment whereby thousands of acres had been redeemed from the sea. Shelley discovered that it was becoming dangerously weakened by the waves, and, in order to raise means to repair it, he immediately drew up a paper, heading it with a subscription of five hundred pounds, a sum he could ill afford, and then diligently circulated it among those living near. Numerous instances are related of his active benevolence during his short winter stay among this people.

In London one evening about dusk he and his college mate Hogg, weary of their walk, were on their way to the hotel for tea. As was their wont, they fell into animated debate. While Shelley was maintaining his opinions with great warmth, entirely unmindful of the throng through which he was threading his way, he suddenly stopped, then pushed his comrade unceremoni-

ously through a narrow door that opened into the shop of a pawnbroker. This strange manœuvre he briefly explained afterward in response to some expression from Hogg of surprise and annoyance. On a former visit to London, some old man, it seems, had told him his distress, which ten pounds alone were able to relieve. Shelley's sympathies were instantly aroused. He gave him what he had, and then for the balance he pawned a beautiful solar microscope upon which he had set great value. This, as he chanced to pass this same way, it suddenly occurred to him to redeem. Although in the latter years of his life his annual income from his inheritance was about one thousand pounds, and his habits were as simple as a hermit's, he rarely was with funds, so unceasing were his charities. He made no parade of his gifts. They were bestowed with the utmost delicacy, and those blessed by his bounty were never afterward embarrassed by any inconsiderate allusion.

But Shelley, even in this his best estate, was pitifully weak. He lacked discretion, being touched by every tale of trouble, without dreaming that shiftless vagabonds often drive sharp bargains in tears and sighs and tattered clothes, hawking pathos about the streets as they would tin-ware or calico. He also sadly lacked system in his giving, and thus greatly crippled his power to relieve the distress whose wide prevalence so profoundly grieved him. Though he thus betrayed an utter ignorance of human nature, and weakly followed the blind promptings of his heart, yet the very fact that he believed in every one's integrity proved his own; and however much we may laugh at his childish

credulity, at his impetuous and ill-directed efforts, his self-forgetfulness commands our admiration. As I have already remarked, he was essentially a dream-creature ; his kingdom was cloud-land. But in his wildest aberrations generous impulses never quit him company ; they followed him like troops of angels.

He was of strong personal attachments. The multitude, it is true, were so repelled by his beliefs that they studiously avoided him ; and such were his sensitiveness and self-distrust, he instinctively shrank from general society, and being naturally of a contemplative habit he early became enamored with solitude. Consequently very few ever knew him personally, but those few seemed unable to allude to the magnetism of his presence except in the words of hero-worship. He had a fertile fancy, a fearless utterance, a contagious enthusiasm. He was open-handed to a fault. The resources of his genius and of his scholarship were also at their disposal, for he not only witnessed their increasing popularity in the world of letters without that ugly envy of authors, but freely furnished them facts and even loaned them the wings of his imagination. Byron was a superficial scholar, and drew largely on the fruits of Shelley's study, his retentive memory, his bold, free thought, Shelley parting with his mental wealth to his rival without stint, simply for the asking. The poetry Byron wrote while in Switzerland is more especially permeated with his refining and elevating influence. In a letter to Moore Byron writes, "Shelley, who is another bugbear to you and the world, is to my knowledge the least selfish and the mildest of men ; a man who has made more sacrifices to his for-

tune and his feelings than any of whom I have ever heard." He expressed the same sentiments in conversation with Lady Blessington shortly after Shelley's death. Such was the private judgment of one who, out of servile deference to the world's opinion, wholly ignored his acquaintance with him when writing for the public eye, in such low estimation was Shelley held by the mass of his countrymen. While in Italy Shelley placed himself, for the sake of his friend, on one occasion, in most imminent peril, receiving in the affray a sabre-stroke on the head and a fall from his horse. His gallantry astonished Byron, for, as he remarked; it was a mystery to him upon what principle any man could be induced to prefer the life of another to his own. Once a storm surprised them when out sailing, and became so violent that they abandoned all hope of their little boat ever reaching the shore in safety. Byron in the emergency proposed to Shelley, who was no swimmer, that if he would cling to an oar he would try and pull him in; but without a moment's hesitation he refused, though he thus apparently let go his only chance of rescue. He imagined Byron would have a sufficiently difficult task to save himself. Such self-forgetfulness has appeared in human history only at the rarest intervals.

The fact that Byron was never a willing witness to any one's merits, friendship being, as he himself confessed, a propensity in which his genius was very limited, warrants us in attaching to any praise that may have fallen from his lips or pen, or have been unconsciously expressed in his life, a peculiar emphasis.

The attachment for each other of Shelley and Leigh

Hunt was of the closest, and lasted till death. Hunt says that for his part he never could mention the poet's name without a transport of love and gratitude. Horace Smith, a prosperous stock-broker, one of the authors of "Rejected Addresses," was warmly attached to him. Although they were at direct issue on questions of religion and social order, and Shelley was the object of obloquy everywhere, Smith always reposed in him the utmost confidence, honoring without security every draft made upon him, feeling certain that he had some benevolent scheme in mind and would not for his life knowingly misapply a single farthing. Shelley was, perhaps, drawn into closer intimacy with Keats than with any other of his acquaintances; and in some of the incidents of their intercourse his capacity for pure, fervent, self-sacrificing attachment conspicuously appears. They agreed during a set six months to write competing poems. "Endymion" and "The Revolt of Islam" were the result of this friendly rivalry. Keats's effort on its issue from the press was most mercilessly criticised in the "Quarterly Review." Shelley with great magnanimity wrote to Southey to interfere in his favor. But the reply he received, instead of speaking in generous compliment of Keats, fell upon himself in cruel accusation. The treachery came unawares. It stung him like an adder. The fair fame of England's poet-laureate from that day shines with a diminished lustre. Shelley was seemingly as interested in Keats's prosperity as in his own. The pleasure he derived from the excellencies of "The Eve of St. Agnes" and "Hyperion" was never embittered by suggestions of envy. It was upon his open page his eyes last rested. From "Adonais,"

that consummate flower of his genius, there exhales a fragrance of affection that will never die out of English literature. Love claims her own. Now at last, after life's fitful fever, they lie peacefully sleeping side by side.

By far the major part of his writings was conceived in the true spirit of philanthropy. His schemes were, many of them, Quixotic, it is true; some were absolutely pernicious; but they everywhere bear evidences of a most tender solicitude for the welfare of suffering and wronged men. In "The Revolt of Islam" his verse breaks out in hot indignation against the oppressor; in the drama of "Hellas" and in the Odes to Naples and to Liberty there breathes through exquisite choral melodies an enthusiasm of gladness because of the oppressor's overthrow, such as could have come only from the heart of one who loved much.

We have here a picture of seemingly the most kind-hearted and considerate of men. Yet it appears it was possible for this man to abandon wife and babe, and so live afterward as to call down upon him the curses of nearly all England. I have shown how he could not bear the sight or thought of sorrow. He emptied his purse, he took his shoes from his feet, the bread from his mouth, sacrificed ease, faced death, for the welfare often of utter strangers, so profoundly the presence of grief and pain moved him. And these acts were performed not merely once or twice, but they were the daily habit of his life; and so deeply seated, so spontaneous, so irresistible, were these impulses of sympathy, even his belief that he was misinterpreted and maligned, the fact that he had become a social outcast, seemed

powerless to check for an instant his purposes of love. We have found his personal attachments to be intense, to be characterized by the noblest self-sacrifices, and to continue constant until death. Still this strange being, without any outward sign of emotion, sundered the most sacred and the tenderest of ties. Months passed. He never inquired after either the wife or child whom he had abandoned with such apparent nonchalance. He seemed to have forgotten them. A new voice soon after thrilled him, and he precipitately formed a new alliance without sanction of law. At last Harriet, made desperate, as most thought, by care and homesickness, threw herself into the river, and Shelley woke to find himself arraigned at the bar of public opinion to answer the charges of cowardice, of cold cruelty, and of an impure life, which from every quarter were in hot indignation preferred against him.

Is it possible to acquit Shelley of blame in this matter? Assuredly not. This is neither hoped for nor sought. My aim is simply to clear his life of the appearance of inconsistency, by placing in their proper light certain mitigating circumstances, and to call attention to certain constitutional peculiarities and defects usually overlooked. They are briefly these. He was a mere boy when he married Harriet, not yet out of his teens. She told him she was in trouble. That is about all he knew about her. His quick fancy fired. He must relieve her, whatever the hazard. He did exactly what an intensely sympathetic, imaginative, impractical, inexperienced boy would do. It is impossible to overstate the rashness of the act, for he had neither money, profession, nor friends. His father had already

driven him out of doors, made mad by his obstinate atheism, and now this misalliance, so humbling to paternal pride, rendered reconciliation hopeless. These two children, for they were nothing more, wandered aimlessly from place to place. Neither of them possessed any faculty for self-help; neither of them, the least conception of economy; and so it was not long before absolute starvation stared them full in the face. Such desperate straits very naturally tended to cool their ardor, and force into painful prominence the fact, for fact it was, that there existed between them absolutely no community either of tastes or temperament. None will dispute their utter unfitness for a life-intimacy with each other. Separation was resolved upon. The agreement was mutual, and entered into in apparent good humor. He left her with her babe in her arms at the door of her old home, where he knew there was an abundance of material comforts. I fail to see the necessity of imputing to Shelley any unkind intent. In making up our judgment we should keep in mind his utter dejection, his wounded pride, his crushing sense of helplessness. We should remember that he was essentially a dream-creature, hopelessly unfit to push his way in the world; that he possessed one of the most vivid imaginations ever intrusted to mortals, accompanied by such acute sensibility that there swept through his brain tempests of thought of which most men know nothing. We should recollect that, while his benevolence was cosmopolitan, his congeniality was limited in the extreme. His mental make being so peculiar, his personal likes and dislikes so positive and powerful, the wonder is he ever succeeded at all in

consorting with his fellows. To have been forced into daily intimacy with one with whom he had little or nothing in common would have been for him the keenest torture. Those outside influences that hold together so many family circles, those prudential reasons, questions of convenience, solicitude for children, or dread of public scandal, were with him as weak as cobwebs. He was of too intense a temperament to be able to take any such middle course. Marriage to him was a matter of affection, not of finance. To have continued to feign what he had ceased to feel would have been a living lie, a thing he loathed. I find it stated by one of his biographers that after he had commenced living with Mary he consulted with his lawyer in all seriousness whether it would not be feasible for Harriet and her children to make their home with them. While in this he showed his laughable ignorance of human nature, his remarkable deficiency in the plainest common sense, he also showed that he was still friendly and felt solicitous that they should fare well; he showed that he was totally unconscious that he had done them an irreparable injury, that between them and him there had been an impassable gulf fixed. This single circumstance throws a flood of light upon this whole affair.

Was Harriet's suicide the result of Shelley's abandonment and proof of his cruelty? There are some strange incidents in her history which seem to controvert this. Even as far back as her school-days, when kindly used, she meditated self-murder; and even after that the thought came back to her at frequent intervals. Many an hour at night she lay awake devising

plans to effect it, although in the morning her attention would be diverted and she would quietly go about her accustomed duties. She was in the habit of conversing on this theme before entire strangers, with nothing extraordinary in either tone or manner, making it the subject of extended table-talks and astonishing the guests by her coolness. Did she not dwell on this thought until the thought mastered her? Would she not have destroyed herself sooner or later had there been no separation? Her first child, Ianthe, was at one time affected with a tumor. A surgeon was summoned. Few would have courted the opportunity of watching him at his work. Harriet, though plainly told by him that the sight would be exceedingly painful, and that she could possibly do no good, yet, young mother though she was, not only persisted in remaining, but narrowly watched every detail in this terrible performance, without the least symptom of sympathy, to the utter amazement of those present. This incident, revealing as it does the sharp contrast between Harriet and Shelley, should have no little weight in determining the causes of the separation and subsequent suicide. Harriet's sister, Eliza, who dogged the footsteps of the young couple like a thing of evil, persistently reminding Harriet of her diseased nerves and nursing her already too plain predilection, and gradually exciting toward herself Shelley's deep aversion, probably played no small part in this tragedy. Shelley once wrote in a letter, "I certainly hate Eliza with all my soul. It is a sight which awakens an inexpressible sensation of disgust and horror to see her caress my poor little Ianthe, in whom I may hereafter find the consolation

of sympathy. I sometimes feel faint with the fatigue of checking the overflowings of my unbounded abhorrence for this miserable wretch. But she is no more than a blind and loathsome worm that cannot see to sting." The exact cause of this aversion is unknown. It was excessive, as were all his feelings, as indeed was his former deference to this same lady. Harriet was held by her under some fatal fascination; and Shelley, in his desperation to rid himself of the loathed presence, may have determined on what he would have gladly averted.

He evidently purposed to assume the care of his children again should his means ever warrant it, and to properly educate them. And when he attempted this and was denied the privilege by decree in Chancery on the ground of his having written "*Queen Mab*," for no other charge was sustained against him, grief and rage swept through him like a whirlwind. In his "*Lines to the Lord Chancellor*" we gain some conception of this terrible tempest. The poem is no piece of ambitious rhetoric prepared for the press. He never made allusion to it, threw it into his limbo of rejected manuscripts, and doubtless thought it destroyed. It is idle to contend that the heart that broke out in this awful curse ever looked upon his children coldly. Surely from nothing but outraged paternal tenderness could have come this wild maniac shriek. That he seldom, if ever, alluded to his children is no proof of indifference; for it was among the eccentricities of this strange being to speak with a mysterious air, in hushed whispers, on subjects which to most people seemed commonplace. Some say that when the news of Harriet's

fate reached him he was for three days beside himself; but reason returned, and in time there came upon his thoughts a deep peace. Such an announcement would naturally have fallen upon one of such delicate nerves with dangerous force, overwhelming him for the time with self-accusation. Had he been capable of the calculating, cold cruelty with which he was charged, his feelings never would have been sufficiently intense to thus master him; and had he not found when he came to himself that he had overestimated for the instant his real guilt, that he had been less a designing criminal than a weak, blind creature of circumstance, overtaken in a fault at a time when hope had wellnigh died within him, erring less in heart than in head, he never afterward could have attained that abiding peace.

He felt himself completely absolved from his first marriage, though he was still undivorced, for he honestly believed that law-makers in this matter meddled with what did not rightly concern them. He saw Mary, and on first sight was very naturally carried by storm. In his subsequent action we see the same thoughtless impetuosity which marks the acts of his whole life. It so chanced he found a companion perfectly suited to his peculiar temperament, one who with him could range with ease through the widest fields of fancy, thoroughly understanding and appreciating his marvellous gifts. In the presence of the constancy of his affection for Mary, the acknowledged purity and quiet contentment of their wedded life, it is impossible for me not to acquit Shelley of those grave charges preferred against him. That he was impulsive, impracti-

cal, sensitive, a magnifier of trifles, the slave of foolish whims, the champion of crude and mischievous notions about the functions of government and the demands of social life, that he betrayed a pitiable ignorance of human nature, and a pitiable lack of power to adapt himself to the ever-changing circumstances of human life, I stand ready to grant. But that to these and kindred defects, the morbid outgrowths of the very traits of character to which I have directed attention, called out in an extraordinary juncture of affairs, and to these alone, can be traced the causes of that abandonment of family which has brought him under such condemnation, I stand equally ready to maintain.

The fifth and last phase of Shelley's character to which I direct attention is his large gift of hope. Of him, thus viewed, we have the true type in the statue of Mercury which, poised far in air above the site of the old French Bastille, crowns the column of July. In marked contrast to Egypt's Sphinx, sunk neck-deep in sand, its placid stone face fronting the dead centuries, we have here a winged boy at the point of taking flight, deigning to touch the pedestal on which he stands with but the tips of his lifted feet.

We see in this life-habit of hope a necessary resultant of those other powerful leanings of Shelley's mind of which I have already attempted an analysis. The latest thoughts of this dreamer still glisten with dew. His faculties never lost their morning freshness. To the very last he looked out on life with the eager expectation of childhood. The texture of his mind was too ethereal to adequately grasp the prosaic, practical, breathing world about him. In his passionate long-

ings to overthrow its tyrannies we have seen him in full confidence put out his little baby hands to pluck down the Gibaltars of social caste and bigotry, of old-time prejudice and self-seeking, behind which they lay intrenched. As he was a natural recluse, lacking the experience of a man of affairs or any inclination to mingle with the multitude and familiarize himself with their methods of thought and the ground-work of their character,—a born philanthropist stung into morbid sympathy with the wretchedness of that multitude by his own personal wrongs,—a radical, a revolutionist by the very temper of his mind,—no wonder his brain became the general rendezvous of every crazed theory of reform. His imagination, noted alike for its abstractness and its intensity, gave them the definiteness and semblance of life, even transfigured them by its witchcraft into conquering bands of angels. Although the opposition he encountered surprised him like the sudden uncovering of masked batteries, yet he never was conscious of danger, never once questioned the soundness of his views or distrusted their ultimate triumph. We have seen him under such influences carried away by the impulse of an outraged individualism into blind frenzy. We have seen him too in happier moods, at times when thrones tottered and light broke fitfully along the world; then the enthusiasm of his mental frames was but a step removed from inspiration. His spirit seemed to rend the veil of the future and catch a glimpse of the fulness and splendor that are in waiting. His two-paged pamphlet, that wild freak of his college days, he looked upon as the advance guard of an army of arguments, destined under his leadership to overturn

unfit faiths everywhere. No sooner had Oxford banished him in her paroxysm of panic than the plucky boy set about the recasting and completion of "Queen Mab," and we find even this chaos of destructive beliefs, this embodiment of bold blasphemy, bathed in the same golden atmosphere of hope. He thought a millennium near, even at the door. Irish exiles found no difficulty in enlisting him in their madcap enterprises. The Greek patriots went from his presence to dream new dreams of glory. A burdened people here and there grew restive, and he burst out at once into those rich choral melodies that ring through the drama of "Hellas" and the Odes to Naples and to Liberty. There is, it is true, in his "Alastor" and in one or two of his minor poems a spirit of dejection; but these we must remember were written at times of extreme bodily weakness and under presentiments of death. In "Prometheus Unbound" the true character of Shelley, his strong and weak points as both man and author, the peculiarity of his beliefs, the aspirations that stirred within him, and the grand hopes in a world's reclaim to which he through life so fondly clung, received, perhaps, their most perfect expression; and this production consequently, while "Adonais" remains the finished masterpiece, must take precedence of all the other writings of the poet as the fullest representative of his genius.

This is the poem over whose pages the enthusiasm of Hope sheds an especial splendor. There is an Oriental magnificence, a fervency, an exultant freedom in its imagery, ushering us into the very presence of the Spirit of Gladness. There seems to be entertained

no more doubt about the happy issue of the battle of passions and principles still fiercely waging on the wide field of the world than if it were already an accomplished fact. Indeed, we have here elaborated into a lyrical drama the millennial day-dreams of the very Prince of Visionists.

The argument of the poem is this. Love is the motive power of the universe. Goodness is inherent in men, and capable of self-development; while evil is a usurper, destined to irremediable overthrow. In other words, the human race both can and will reform by the might of its own free choice. For the drapery of this thought Shelley has remodelled the old Greek myth that forms the plot of one of the lost tragedies of *Æschylus*. The throne of Saturn, personating ignorant innocence, is usurped by Jupiter, the spirit of evil, who, jealous of Prometheus, the humanity in man, and wishing to extort from him a revelation of the danger that threatens his empire, chains him to a rock and delegates fell furies to feed upon his ever-renewed heart. But the tyrant finds no torture that can tame the Titan. The secret is kept; the fatal step taken. Demogorgon, the Spirit of Oblivion, Jove's own offspring, becomes his destroyer, and Prometheus, freed by Hercules, re-establishes with nature his old companionship.

Prometheus, at the opening of the drama, speaks of his slow-dragging centuries of pain, their moments divided by keen pangs till they seem years. Though torture and solitude and scorn are his empire, he glories in it as a conqueror, believing it more enviable than that of his tormentor. Though each hour brings pain,

he welcomes it, for one among them is to drag forth the cruel king to kiss his feet, which then would not deign to trample the prostrate slave. The Titan, confident of his approaching triumph, pronounces a pity for the fallen god, not in malevolent exultation as at first, before sorrow had lifted him into nobler thought. He asks his former curse recalled, and Earth forces the phantasm of the very foe against whom it was first pronounced, to repeat it. It is filled with proud defiance, bidding the torturer do his worst. While expressing appreciation of the woes in store, presenting a frightful picture of the agony within the gift of omnipotent hate, he yet invokes a sufferer's curse to clasp his tormentor like remorse, till his infinity shall be a robe of envenomed agony, a crown of burning gold. He waits to welcome the hour when the mask shall be torn from the face of the tyrant, and after

“Fruitless crime

Scorn track his lagging fall through boundless space and time.”

These words, thus again pronounced, Prometheus regrets, calls them quick and vain, remarks that grief was blind, that he wished no living thing to suffer pain. Earth, fearing from this expression of pity that the Titan was at last vanquished, is reassured by Ione, who is confident it is but a passing spasm. Then Mercury arrives with a band of furies. Before they are let loose, the messenger expostulates with the rebel, endeavors to convince him of the hopelessness of his rebellion, and to induce him to divulge the secret and thus secure his release. “Let others flatter crime,” replies the captive, “I wait the retributive hour.” The

hell-hounds clamor for their victim. He warns Mercury of the danger of delay. Still Mercury, sympathizing with the grand old sufferer, says, pleadingly,—

“Once more answer me,
Thou knowest not the period of Jove’s power?”

The reply comes back,—

“I know but this, that it must come.”

Mercury bids him plunge into eternity and see the centuries of approaching agony; he pictures his bliss among the gods if he will but yield; and when at his continued refusal he expresses wonder and pity, there comes from the firm lips of the Titan,—

“Pity the self-despising slaves of Heaven,
Not me. . . . How vain is talk!—
Call up the fiends.”

They come. Such pictures of mental torture as here follow have few, if any, parallels in literature. The ordeal ended, the air is filled with light and music from a chorus of spirits, bright essences of human thought, indefinable hopes, aspirations after better things, self-forgetting love, dreams of poets, all the tokens of innate nobleness in men, harbingers of brighter days. They assure him that though Ruin is now Love’s shadow, its doom is sealed.

In the opening of the second act, Panthea and Ione, types of faith and hope, are visited with dreams that body forth this same bright future. In succeeding scenes they go down with Asia to the cave of Demogorgon and inquire after the origin of evil, and we en-

counter in the reply some of those wild vagaries, so common to the poet, betraying most lamentable weakness. At the close of the conversation Asia demands of Demogorgon when Prometheus shall be freed and right again reign on the earth; and in this reply impersonating the hours we feel that a most consummate artist is touching the canvas into life. The spirits ride by in chariots drawn by winged steeds trampling the dim winds:

“Some look behind as fiends pursued them there,
Others with burning eyes lean forth and drink
With eager lips the wind of their own speed,
As if the thing they loved fled on before,
And now, even now, they clasped it. Their bright locks
Stream like a comet’s flashing hair; they all
Sweep onward.”

Of these one bears a dreadful countenance,—a ghastly charioteer, the shadow of a destiny whose accompanying darkness is soon to wrap in lasting night heaven’s kingless throne. As this terrible darkness floats up and ascends the car, the coursers fly in terror, trampling out the stars. Another chariot stays near the verge of the horizon. It is an ivory shell inlaid with fire. A young spirit guides it. In his eyes is the light of hope. He says, in announcing his coming,—

“My coursers are fed with the lightning,
They drink of the whirlwind’s stream.
* * * * *
I desire; and their speed makes night kindle:
I fear; they outstrip the typhoon:
Ere the clouds piled on Atlas can dwindle,
We encircle the Earth and the Moon.
* * * * *

On the brink of the night and the morning
My coursers are wont to respire,
But the Earth has just whispered a warning
That their feet must be swifter than fire:
They shall drink the hot speed of desire."

After the spirits wing by, Asia's—nature's—future is foretold in most delicate and impressive imagery.

In the third act Demogorgon, with tranquil might, remands Jove down to darkness. Hercules strikes the fetters from the limbs of the Titan, the exiled Asia returns to the side of her lover, and the Spirit of the Hour, as he sweeps through the air in his chariot, heralds the dawn of the new era. The concluding act is a series of triumphal chants, in whose wraith-like fancies we witness one of the most ethereal-minded of mortals in a state of wild transport. An unwonted glory lights his thought, for it is here, where Hope by her enchantments seemingly draws aside for him the hiding curtains, that it may be safely said his powers of creation culminate.

This drama, while unquestionably a work of art, is also, and with even greater emphasis, a confession of faith and a revelation of temperament. With it simply as such am I at present concerned. And now, let me ask, what is there more natural than that this fearless devotee to truth, this dream-bewildered lover of men, this tameless Arab child, thus firmly convinced that the world's sufferings were due to whatever of its customs and laws restrained in the least the utmost personal freedom, and that so soon as these impediments were removed the divinity in man would be self-asserting and reign without a rival, that the present social

system was doomed to certain and swift overthrow,—what more natural than that he, led by some fatal hallucination to regard himself as the great apostle of this new, strange Gospel of Peace, should really from right motives have openly violated in his life the common conscience, and in his published works have become the uncompromising advocate of principles which had they prevailed would have hopelessly debauched it?

I have now completed my analysis of this remarkably exceptional character. It has been my purpose simply to show how Shelley, surcharged as he was with imagination, individualism, enthusiasm, love, and hope, while exhibiting in his life and writings many apparently vital contradictions, actually maintained in the main drift of both his thoughts and acts as strict a self-consistency as comports with usual human frailty. Precisely how far he was accountable for his morbid mental moods, his dangerous doctrines and still more dangerous modes of life, or how far he was the helpless creature of organism and circumstance, I leave an open question, preferring that the responsibility of its decision shall rest with that higher tribunal to which he has gone, "The Court of Final Appeal."

THE BRONTË SISTERS.

HAWORTH village sturdily clambers up the stony sides of a Yorkshire hill, until with its kirk and parsonage it gains outlook over wide reaches of bleak moor. Its inhabitants, of Norse ancestry, moulded by contests with a most stubborn soil and forced familiarity with the wildest scenery, combine with their curt ways and vehement prejudices keen intellects, independent wills, and warm hearts. Impassive stoics without, within they burn with the fiercest fires of feeling. Their hatreds and friendships, kindled with slow caution, become fervid and deathless. This village of dim traditional origin has already outlasted many generations, and seems destined, with its solid masonry and stereotyped life, to outlast many more.

Fifty-nine years ago, in chill mid-winter, from across these wild barrens a public coach slowly rolled along the main street of this lonesome country town. As it stopped before the door of the parsonage there alighted a man of clerical habit, tall and slender in person and of decisive tread. Behind him, past the gate and up the garden-walk, followed a middle-aged, pale-faced lady, accompanied by six very young and extremely delicate children. The house they entered, its walls,

its floor, and its staircases, were of cold stone. It stood in an isolated position. About it on three sides was the silent city of the dead; while in its rear lay the unpeopled, wind-swept moors. Rev. Patrick Brontë, thus entering upon his new Episcopal pastorate, was one of nature's anomalies. His appearance was striking. He would impress you at once as the very impersonation of independence, alertness, and decision. He was an Irishman of hot blood, having all that wild vehemence that gives dash and vigor to the heroes of romance, yet his volcanic nature was crusted over with rigid reticence. He was unquestionably a good man, but his manners were cold, stern, forbidding, self-contained, having in them no tender glow of sympathy. A confirmed recluse, he sought no companionship, encouraged none. While scrupulously attentive to the sick and painstaking in his pulpit performances, he paid no further attention to his parishioners, neither visiting their houses nor encouraging them to visit his, thus walling in himself and his family with complete social isolation. He not only kept himself aloof from the neighborhood but from his own family circle, going so far as even to habitually order his meals to be sent to his study. So frigid was his ordinary deportment and so methodic were his life-habits, that one would be apt to mistake him for an automaton of whalebone and iron. Yet now and then would come bursts of passion, which even his marvellous might of will could not repress. But instead of storming with his tongue, or moodily lowering with knit brows, or madly striking the offender, as is the common wont, he never having been known to speak a harsh word or

give a blow, he would vent his wrath by discharging in quick succession the barrels of his revolver, burning the hearth-rug and drinking in the odor as if it were the sweet breath of flowers ; or by ripping the teeth of his saw into chair-legs and tables. It was one of his theories that a country parson's family should in their diet and wardrobe set an example of strict simplicity. He was no niggard, only notional. He also thought thus to make his children bodily and mentally robust. Regarding meat as a luxury, he placed it under ban. He relentlessly threw into the fire some shoes that had been sent to his children by some kind friend, thinking them too gay. His wife once had a brightly colored silk dress presented her, but, knowing that it would displease him to see her with it on, she quietly laid it away in one of her bureau-drawers. One day he espied it, and quick as thought slit it into shreds. He had one dread, and but one, that of fire. This was so intense that he would allow no curtains or drapery of any kind about the house, and forbade his daughters wearing any dress not made of silk or wool. His own clothes were of Quaker plainness, with a single laughable exception. He would luxuriate in a cravat periodically covered by himself with white lutestring silk. The stock increased in size the longer it was worn, for its silken jacket was never removed, until at last it became so immense that half of the parson's head was enveloped in it. He never indulged his children in toys, or picture-books, or play-mates, so fearful was he of enervating their minds. His nature seemed to have no dramatic element in it. He had no power of putting himself in some one else's place, firmly believing that as his style of mental life

was healthful and relishable to him it must necessarily be so to every one, no matter of what age or temperament. This his Spartan method of treatment necessarily worked sad havoc on young sensitive hearts, and it had especial power for evil from the fact that the gentle-natured mother lay for a long while in her sick-chamber helpless, eaten with cancer, waiting with sweetest Christian patience the coming of the death-angel.

Servants managed the house. The six frail little ones, the oldest but eight years of age, thus so sadly orphaned, nestled all the more closely together in their chill upper room to read and talk in muffled whispers, or wander out, hand in hand, over the desolate moors. The sufferer at last found her long-coveted relief. The father continued crusting over every kindly impulse with more confirmed unsocial eccentricities, and hushed the house into lonelier quiet. A twelvemonth after, a maiden aunt came from Penzance, but her notional discontent brought no sunshine inside those cold stone walls, her conscientious discharge of duty winning only a chill respect that never melted into love. She, however, schooled the children in useful in-door industries and established in them habits of thrift. Mr. Brontë for a time personally attended to their scholarship, and, as his mind was possessed of great native strength and method, his teaching, while it lasted, was undoubtedly faithful and efficient.

The children evinced at an early age brilliant intellectual gifts and strongly-marked traits of character. They would sit for hours listening with evident relish to their elder sister Maria as she read the newspaper

debates on local and foreign political issues of the day, or the still more mature and close reasonings in books from the rector's carefully-selected library.

In July, 1824, Maria and Elizabeth, the two eldest children, were taken to Cowan Bridge school, and in September following Charlotte and Emily were destined to join them company in that prison-house of suffering, whose tragic incidents during their few months' stay found a quarter of a century after such vivid coloring in the story of "*Jane Eyre*," so deeply graven were the impressions of those times on the memory of a girl of eight. Under the baleful influence of damp rooms, scant clothing, unwholesome food, and harsh discipline, the scholars rapidly became depressed and fell an easy prey to a low infectious fever that stretched forty on the beds of the hospital. Though the Brontës escaped the poisonous fangs of the typhus, Maria and Elizabeth languished into consumption similarly induced, and before the year ended slept with their mother in the crowded church-yard at Haworth.

Charlotte and Emily in the autumn following again rejoined the sadly-broken family circle. In their little upper room the children again rekindled their quaint enthusiasm over the intricate themes that perplexed politics and letters, and again hand in hand renewed their loved rambles over the heathery moors. Their daily animated discussions gave them readiness and precision of thought and expression, corrected misapprehension, developed taste, formed and confirmed opinions, riveted attention, sharpened appetite, and developed the native piquancy and force of individualism that lay latent in their natures. This was not all. Cut off from

the social pleasures that commonly flavor life, and thus forced back upon their own innate resources of enjoyment, their imaginations, as quantities of preserved manuscript poems, magazines, novelettes, and dramas abundantly testify, under the stimulus of this intimate and uninterrupted interchange of sympathy, and the weird dream-state consequent upon a secluded life, even thus early gave golden promise of their afterward sustained and lofty flights.

Charlotte, in 1830, when she was but fourteen years of age, made out a catalogue of twenty-two manuscript volumes of her own composition during the fifteen months preceding, and each of these volumes contained from sixty to one hundred of not only closely but almost microscopically written pages.

It is said that Mr. Brontë, following some odd impulse, would occasionally emerge from his seclusion, seat himself at the table where these remarkably imaginative children were taking their meals, and relate, with that startling vividness and vigor of delineation for which he seems to have had an especial gift, half-legendary tales of rough Yorkshire life, or would recall his own wild youth in old Ireland. A grim smile of triumph would play over his features as, depicting scene after scene, he saw the eyes of his little auditors dilate with rising horror. How he dared thus trifle with their impressible natures, or how they endured such mental tension, may well excite our wonder.

In that circle was one listener whom no phantom could fright, but along whose nerves ran wild ecstasy as about her the electric air grew livid with bursting bolts of some tempest of passion. She seemed to glory

in the onrush of the storm, for she would afterward recount to her sisters by the hour some of those scenes whose grim grotesqueness had so fascinated her fancy. It was she out of whose morbid musings, begun here, sprang, years after, that man-monster, Heathcliff, which glares out at us from the pages of "*Wuthering Heights*."

For six years these orphaned children thus nestled together, forming a little world of their own, and finding in each other sympathy and endearment. Then came forced separations and poignant griefs. One after another the sisters sallied out as governesses; but they were too timid and sensitive for such a life. They looked forward with keen anticipation to their Christmas reunions in the old study-room or out on the purple moors. It was their wont, after the lights were extinguished and sleep had hushed the household, to pace the floor arm in arm, recounting the year's experiences and talking over in the freest manner their latest efforts in verse and story. It was then they conceived the plan of joint authorship. Their first literary adventure, a little volume of poems, harvested for them, however, only expense and chagrin. We could rightfully expect no other issue, for, while quiet beauties may here and there be met with, the usual tone of thought is too depressing to interest the general reader. Resolving then to open a private school, hoping thereby to be able to keep together, Charlotte and Emily crossed to the Continent, put themselves under the best training, and pursued their studies with indefatigable zeal, but, as far as their present scheme was concerned, all to no purpose, for they solicited patronage earnestly but in vain. Thus ended their second attempt at solving the

difficult problem of self-support. To darken all, their gifted brother Branwell, the very light of their eyes, was found fast driving, passion-blind, against the black rocks of ruin. He was a boy of the brightest promise; but the very brilliancy of his gifts destroyed him, for his sunny temper, quick repartee, and fascinating narration, that made him the remark and pride of the village, called around him a crowd of boon companions. And so it was not long before the society of his sisters lost its charm and the quiet of the parsonage oppressed him. Inheriting in full measure his father's impulsiveness and restless activity, but not his iron strength of will, left by his father without restraint or guidance, he naturally fell into deepest dissipation, that ended in moral and physical wreck. In his last act he displayed that peculiar Brontë trait of absolute fearlessness which had ever characterized him. Years before, when but a speck of a boy, he had threatened to thrash a group of burly fellows any one of whom could have picked him up with thumb and finger. Now when death came, at whose summons he had every reason to start back in wildest consternation, he promptly sprang to his feet and with unflinching nerves continued standing until his soul exchanged worlds.

The three sisters made a second attempt at joint authorship, this time in the department of fiction. "Wuthering Heights," "Agnes Grey," and "The Professor," were despatched to London. After repeated refusals, the first two at last found a publisher, but they were wellnigh cruelly strangled at birth by the cold condemnation of the critics.

"The Professor," after having been six times de-

clined, once quite curtly, Charlotte at last laid quietly by among her private papers. This new enterprise the sisters went about in a very quaint way. First they freely talked over the plots and personages, even went so far as to fix upon the names of the principal characters. Then, gathering around the sitting-room table, they followed silently each her own rapidly rising fancies. Late in the evening, after all others had retired, they would pace through the room, arm in arm, as had been their former habit, reading and criticising their work without thought of reserve or fear of offending, so perfect seemed their loving confidence. There is a charm in this home-picture that suggests some other brighter world than this.

"*Wuthering Heights*," despite its defects, is a work of singular power. After we have once commenced to turn its pages, we find we have pushed our skiff out into some resistless current of thought and passion. We may be painfully conscious of sweeping madly toward some plunging cataract, whose distant roar comes to us even from the first, when the wind is fair; yet we are in the fierce clutch of the rapids and must go right on. Though there is scarcely a ray of sunshine, a form of grace, a tint of beauty in the entire book; though scene follows scene in which human nature appears at its very worst,—is absolutely damnable, devilish; yet such is Emily Brontë's extraordinary creative might, such her subtle analysis of emotion and motive, such her freshness, vividness, vigor of touch, such her bold, untrammelled spirit, there is in all she delineates such living reality and intensity of feeling, that we are held till the close as bewitched as was the belated wedding

guest in Coleridge's "Ancient Mariner." This book is unquestionably of morbid mood ; it lacks artistic proportion ; has little or no moral perspective ; is pervaded with feverish unrest, with fierce relentlessness of spirit. The whole story seems struck through with the horrors of nightmare and distempered dream, the deep undertone of melancholy here and there breaking out into a perceptible wail, at times almost into a maniac raving.

Yet this juvenile work of an untrained English girl is in many respects a masterpiece. Its creations are wonderful. Heathcliff, the two Catherines, and Here-ton Earnshaw are as distinctively original, and are as vividly, powerfully drawn, as any personages in the plays of Shakespeare. None of her critics, not even those most unsparing in their condemnation, have had the hardihood to deny her rare creative genius. In the first place she chooses for her hero one who in his character and career discloses to us the abysmal depths of the most hellish human personality ever conceived. From the time when, as a nameless waif, he is tossed ashore on that wild night, until the hour his grasp on life and on his own dark purposes of revenge relaxes, he signally fails in a single instance to command our admiration or to elicit our sympathy. We grow solicitous, not that he should reform, for of that we soon abandon all hope ; not that he should triumph at last over those whose scorn and rebuff had kindled in him the flames of hell ; not that he should win the hand of the girl whose heart, in the fulness of its wild passion, had long been his ; but we rather grow solicitous lest, with his consummate cunning and cruelty, through

which for a season he seems irresistible, he should to the last devastate unchecked and encounter no Nemesis.

E. P. Whipple has said, "Compared with Heathcliff, Squeers is considerate and Quilp humane. He is a deformed monster, whom the Mephistopheles of Goethe would have nothing to say to, whom the Satan of Milton would consider as an object of disgust, and to whom Dante would hesitate in awarding the honor of a place among those whom he has consigned to the burning pitch. He is an epitome of brutality disavowed by man and devil." He further remarks that "the author appears to think that spiritual wickedness is a combination of animal ferocities, and has accordingly made a compendium of the most striking qualities of tiger, wolf, cur, and wild-cat, in the hope of framing out of such elements a suitable brute-demon to serve as the hero of the novel."

In the pages of the "North American Review" of 1848 he greeted this work on its first presentation to an American public in these and other like withering words of scorn, adjudging the author's talents worse than wasted. The tone of the English press was, if possible, even more severe.

Eminent critics have differed very widely in their decisions,—one remarking that "the characters are vivid, and if we may hope they are singular we also feel that they are real;" another, "'Wuthering Heights' is a literary curiosity, unmistakably the work of a strong mind, into which the wild scenery of the north has deeply sunken, but it shows absolutely no comprehension of human character. We are transplanted to a

dream-land, enveloped in a lurid thunderous atmosphere, through which stalk fantastic giant beings, gloomy and devilish in their utter wickedness. It is the production of a powerful imagination, but of an imagination unrestrained by any experience of the real."

This discrepancy in judgment I conceive has arisen from a radical misconception of the principal personage. Heathcliff was unquestionably insane, his aberration extending as far back at least as that evening when, from a conversation accidentally overheard, the cruel revelation flashed upon him that Catherine, despite her secret love, had in her proud spirit of caste discarded him as unworthy of her social recognition. If we study Heathcliff in the light of this suggestion we shall find that much of the apparent extravagance of the author's conception will disappear, that the character is not only consistent in itself, a point which all allow, but is in every feature human.

Heathcliff was of vigorous mind, morose temper, volcanic passion, supreme selfishness. He loved Catherine with all the vehemence of a strong and intense nature. The fact of his obscure birth was to him deeply humiliating. The slightest allusion to it stung him to the quick. And now when the soft white hand of his Catherine shut in his face the door of hope his whole thought passed into eclipse. A mental and moral madness followed the glare and shock of that falling thunderbolt, from which he never rallied. Byron had in him wellnigh all the hellish possibilities of a Heathcliff. A drop more of bitterness in the chalice which fate and his own perverseness pressed to his lips would have crazed him. The fierce, tiger-like impetu-

osity with which Heathcliff poured out his love to Catherine in her death-chamber, their wild fatal embrace, his life-long unquestioning faith in her return, his nightly tryst in the haunted room and on the lonely grave, his frantic reaching out to clasp her hand thrust in at the open window, and his mental agony as he saw it vanish again into the night, the peculiar causes of his death, insomnia and loathing of food, are all unmistakable evidences of brain-lesion. Through twenty years he thus lived in close strange converse with the wraiths of his imagination. To him they were instinct with breathing life. That other phase of character, that in which is disclosed to us a deeper, blacker hell of hate than the sombre genius of the Florentine poet ventured to picture in his "*Inferno*," bears also to me convincing proofs of a disordered mind. When purposes of revenge become through one score years of mature life so completely the dominant passion of any individual as to destroy in its fierce heat every trace of tenderness, of sympathy, or even of contrition,—to prompt the sundering of every social tie, to lay waste not only every spiritual hope and aspiration, but every earthly one, to compel the lost soul to retire within the fearful privacy of its own accursed thought as completely and hopelessly as if shut up within the solitary cell of a mediæval dungeon,—then we may rest assured there has been inaugurated the iron absolutism of monomania. Such a being is no longer a man, or even a demon, but simply an infuriated brute-monster. He has sunk below the level of moral motive, his acts exhibiting the appalling possibilities of man's animal instincts and intellectual faculties when once released

from the control of their master. Such was Heathcliff. He spread his net and watched with fiendish grin one victim after another struggling helplessly in its meshes. The gaming-table, the maddening cup, deceit, bribes, threats, imprisonment, the noblest and the basest passions, the tenderest ties, the holiest aspirations, the fondest hopes, were all used by him with most consummate adroitness and nonchalance to further his deep-laid scheme of villany. The brother of his Catherine, and that brother's bright and beautiful boy, Catherine's daughter, his own wife and dying child, were regarded by him but as so many pieces on his chess-board. The measures he adopted had all that marvellous cunning and relentlessness characteristic of madmen. He utterly refused companionship, repelled even all neighborhood civilities. His victims, whose deadly hatred for him broke out perpetually, constituted his family circle, and these he forced daily into his presence. This veritable pandemonium was to him a lordly pleasure-house. He revelled in its turbulence. The order of nature seemed in him thus so reversed in every respect that I have no hesitancy in pronouncing him smitten with incurable madness.

It is possible thus to exonerate this book from the charge of extravagance. It is also possible to free it from a far graver charge,—that of immoral tendency. So eminent a critic as Bayne has remarked “that works like that of Edgar Poe and this ‘Wuthering Heights’ must be plainly declared to blunt, to brutalize, and to enervate the mind.” These authors, indeed, strikingly resembled each other in their analytic and creative gifts and in their weird spirit of melancholy and mystery,

but in other respects they stood in marked contrast. Poe had stunted, almost destroyed, his spiritual nature. In his writings he studiously avoided all allusion to moral sentiment. It was his evident purpose and pride to excel in literary art and finesse. He was never free from deliberate, self-conscious posing. To be an uncompromising advocate of any cause, to thrill through and through with some mighty master-passion, was wholly foreign to his nature. He was not a man in blood earnest, had no high purpose, was simply a connoisseur, a literary artist, a gifted trifler, studying how by tasteful arrangement of drapery, subtle play of fancy, skilful use of rhythm and the refrain, nice adjustment of light and shade, to produce certain æsthetical or mystical effects, and nothing more. The influence of his genius has, indeed, been to blunt and brutalize the mind. On the contrary, Emily Brontë's searching glance went to the heart of things. How to delicately, elegantly, gild some empty bauble never engaged her powers. Even the principal canons of art she fearlessly disregarded in her choice of a hero and in depicting his career, so intently determined was she to speak out the truth that was in her. Had she with prophetic ear caught the sound of disparaging criticism that afterward greeted her published work, she would not in the least have faltered in her purpose. Prospects of persecution would not have deterred her. Her thought crystallized in obedience to certain internal mental laws wholly free from those outside influences that generally modify, through hopes or fears, the productions of other authors. To breathe this atmosphere of intrepidity and utter unworldliness would elevate, not enervate; brace, not

blunt, the mind. But, urge her critics, it is brutalizing to have laid bare before us so black a heart as Heathcliff's, to be made familiar with the details of his life of infamy. Yet Dante has drawn pictures of the wickedness and woes of the damned of such startling vividness that they will never fade out of men's memories. Six hundred years have rolled away since those conceptions of hate and horror found being in his brain, and now our own Longfellow, whom we lovingly regard as fit representative of the culture of the American mind of the nineteenth century, has adjudged this mediæval poem worthy of being presented in his graceful and finished verse to all English-speaking people. Milton chose Satan as the central figure in that grand epic which he purposed should be the crowning work of his life, which he enriched with the ripest learning of his time, and which will ever be regarded as the consummate flower of his genius. He is open to criticism, not that he has uncapped hell, but that he has rendered it dangerously possible for his readers, charmed by the too kindly glow of his imagination, to entertain feelings of pity, if not of admiration, for the thunder-scarred leader of heaven's rebel hosts. And Shakespeare, the third and brightest star in that constellation whose silver radiance is the glory of this night of time, has left us Iago and the daughters of King Lear. Life's voyagers sail treacherous seas. Rocks and whirlpools and sand-bars hide their couchant forms amid tumbling billows watching for their prey. It is well that bright beacons lit by the torch of genius blaze out here and there their timely warning over the waters. It is well that a Heathcliff, at the call of a conjurer, is forced to

stalk forth in all his revolting deformity out of the dim region of shadow and dream into the broad gaze of the world ; for how many there are that are liable to fall as low as he, if in some evil hour they yield themselves to the malign influences that lie in wait for their souls ! We need to have our torpid, tame imaginations kindled into juster conceptions of the appalling possibilities wrapped up with the deathless powers of every one of us. There are thrown over the misery and meanness of this monster no half-hiding flowing folds of the silken robe of sentimentality. He stands out in all his naked ugliness, loveless and unloved, blasted and black as the sides of volcanic gorges, lost to hope, lost even to desire.

But, while defending this book against the charge of extravagance by showing Heathcliff to have been deranged, it may seem that I have exposed it to the criticism that madmen, instead of being thus pushed into the foreground of an exciting work of fiction, should be remanded to the privacy of a medical asylum and studied only by trained alienists for purposes of cure. I must allow that ordinarily the introduction of such heroes would be far from defensible ; but the truths that are thus disclosed and indelibly impressed on heart and conscience are of such transcendent moment that a writer with a genius as peculiarly fitted as was Emily Brontë's to perform successfully this most difficult of tasks has unquestionably received a commission from the skies. We need shrill clarions of alarm now and then to awaken us to the imminent perils that threaten our very existence.

A bar of steel smites the cold face of a flint, and a fire-

tigress bounds into being. A sunbeam glides through the moistened walls of a buried seed, and a little fairy wakes and works her wonders. A telegram comes flashing in along some line of nerve, and a mysterious mental life begins in the brain. These three distinctive forms of force, the chemical, the vital, and the mental, linked and subordinated in every individual, the lower to the higher, are all servitors of the soul by God's appointing. They work only under certain fixed conditions and with undeviating regularity. Their natures, widely different, never change, but like slave-genii each promptly obeys the behests of the one set in authority over it. The measure of this mastery is the measure of health; its loss marks the inroads of disease. The chemical forces no sooner detect the weakening of the vital than they begin to break down the very tissues it has been their tasks till then to build up and maintain. The mental no sooner relax their grasp on the vital, neglect to restrain or guide, than the propensities and passions, the lusts and longings of the flesh rise in mad mob and deafening clamor. And so too those ceaseless currents of our thought, which we may quicken or retard or direct, but can never stay, grow morbid and mischievous without a master.

At the first over this wide empire of force the soul sat sovereign, not a rebel in all her realm. Now there is not a province in peace, but riots ripening into revolutions threaten her throne. We are diseased, every one of us, but we are apt to underestimate our maladies and deceive ourselves into false security until at last no remedies can reach us. What we need is to be brought, through vivid and powerful portrayals by gifted minds,

to realize that in each department of our complex nature there has been established a death-line; that the vital, the mental, and the moral forces may each temporize with the insurgents in its kingdom until it becomes utterly impossible to quell them into quiet. The vital will sooner or later be vanquished, our clay tenements will disintegrate to dust. We may delay the day of doom, but innumerable diseases, through vicious indulgence and through hostile environment, subtile poisons in earth and air, have alarmingly shortened human generations and made the world a crowded graveyard. Our intellectual and our moral faculties are equally in danger, equally require the rigid surveillance of our savans of science. Let the career of Heathcliff warn us against the first uprising of prejudice or blind passion. Whenever any thought or emotion has gained undue prominence, whenever the directive power of the will is weakened, we are actually the victims of temporary insanity; we have, in a measure, lost our liberty; and the longer we delay asserting our self-supremacy, the less our chances of asserting it successfully. There was a time when Heathcliff could, by the recuperative energy he still retained within himself or within the reach of earnest call, have thrown off the incubus of disease; when he could have ruled out of his mind the devils of hate that at last wrecked him. I feel persuaded here to add, and urge with most solemn emphasis, that a thorough and candid investigation of our own condition will reveal our need of the help of some Higher Power permanently to free even those of us least enslaved. While I watch the hate of Heathcliff grow to so fierce a heat that not

only every intellectual faculty but even every bodily function is at last utterly consumed, I am led to conjecture whether the fire of madness which seems to enwrap with its inextinguishable flame his very soul will not only discrown and disfigure it, but by and by consume its very substance, actually drive it out of being.

I am led to conjecture still further whether the slower, cooler, more phlegmatic temperaments in the world, if over them malign influences ever gain firm foothold in this or the other life, will not fire with the same fierce heat and fall at the last into the same voiceless void.

We here see that evil has its limitations in its very tendency to derange and destroy the physical, the intellectual, and perhaps even the spiritual organism of those who surrender themselves to its sway.

The kinder fates of the other personages that appear in the progress of the story disclose to us still further limitations to its devastating power, for it is arrested by the rebound toward goodness of the young in Heathcliff's household, whom from infancy he had sought to develop into boors and devils, and at last, through his dying intestate and their intermarrying, by their recovery from his robber hands of their long-lost estates.

Thus this gifted writer in the peculiar fates of her personages has impressively illustrated the working of certain immutable laws established throughout God's universe, setting bounds to evil not only as to its present power, but, it may be, even as to its ultimate perpetuity.

I have already briefly enumerated some of the more noticeable excellencies as well as defects of "Wuther-

ing Heights" as a work of art. There is one prime feature to which I wish now more especially to direct attention. As we turn the leaves one by one and gradually fall under the resistless spell of genius, we realize when too late that we are driven by fierce winds helplessly over an angry sea. The heavens are curtained with cloud. Not a speck of sky, not a ray of light. No sound but the creak of cordage and the break of billow. The day dies, and night and storm settle on the deep. The hours wear wearily away with rain-beat and wind-wail, until at last, after our hearts have well-nigh sunk with dread and longing and dreariness, the clouds lift and roll back from off the face of the east, while the resplendent sun of a new day belts them with Hope's rainbow and broiders their flowing skirts with Love's threads of gold.

To change the figure. The writer has seen fit to conduct her readers through a dimly-lighted gallery of paintings in which have been delineated, with great elaboration, wickedness and wretchedness in all their most revolting and harrowing phases. Each separate canvas holds us by some weird witchery. We are in the hands of a *Doré*. But there is no relief, no cheerful tint, in all the room. The monotony grows oppressive. We soon draw back with horror. We feel that we have entered one of the halls of Hades,—one of the picture-galleries of the damned. But on reaching the farther end of the room a door is suddenly thrown open, and as we pass the threshold we are at once confronted with a flood of glory. The sunlight is seen streaming from above upon a canvas enlivened with the most brilliant tints in nature. We feel now the presiding

genius of a Moran. Over the prostrate form of Evil the spirits of the Good and the Glad are enthroned as rightful sovereigns of human destiny. It is barely possible, though no critic has ever suggested such a thought, that this weary monotony of gloom was intended by the artist to make ready her guests, through the effects of contrast, for their entrance into a room made bright by the presence of God's angels. Dante is led by Virgil through the regions of the damned ere by the side of his Beatrice he passes the gates of light. These last scenes are admirable pieces of rapid sketching. There is about them a breeziness, boldness, freshness quite unique. What authors usually linger over with infinite painstaking she vigorously outlines and leaves to the imagination of her readers. There is, however, no vagueness, no neutral tint, no uncertain touch or tone, no air of hurry. The sentences are crisp, compact, complete. Further elaboration would have simply rendered the pictures less suggestive and stimulating.

While this novel as a work of art is somewhat defensible on the grounds indicated, it cannot be denied that established canons have been disregarded, and the fact that they have been, and that, too, in a spirit of apparent recklessness, demands explanation. An author will not thoughtlessly shut out her hero thus from the reader's sympathy, for such a course greatly jeopardizes, and ordinarily would absolutely preclude, literary success, since the reader's abhorrence must increase with each new unfolding, however admirable may be the author's skill in disentangling the threads of circumstance. Emily could but realize the risks she incurred. She must have known that the reader would demand

ample compensation for the loss of that loving sympathy with which he usually watches the shifting fortunes of the heroes of story. The explanation is to be found in the marvellous make-up of the woman herself, and in her strange surroundings. The untamed blood of the Titans certainly coursed through the veins of this shy, reticent girl; for there was in her love of nature something more than a sweet poetic sentiment, there was a wild ecstasy. Her spirit especially revelled in the desolate solitude and unchecked freedom of the moors as they stretched away before her, in purple undulations, without a tree or confining fence or human habitation, with only the distant horizon-line to shut them in. This phenomenal love found expression in Catherine Earnshaw's dream: "I was only going to say that heaven did not seem to be my home, and I broke my heart with weeping to come back to earth, and the angels were so angry that they flung me out into the middle of the heath, on the top of Wuthering Heights, where I woke sobbing with joy."

Swinburne says that "this love exhales, as a fresh wild odor from a bleak shrewd soil, from every storm-swept page of 'Wuthering Heights.' All the heart of the league-long billows of rolling and breathing and brightening heather is blown with the breath of it on our faces as we read; all the wind and all the sound and all the fragrance and freedom and gloom and glory of the high north moorland."

Her spirits rose in exultation when earth and sky wore their sterner moods of tempest. Any fierce war-ringing of nature's mighty elemental forces she watched in rapt attention. A thunder-burst thrilled her like

some grand organ symphony. Even in the desolate aspects of winter she found a charm. She never sought or craved companionship, was remarkably self-contained ; even her sisters caught but occasional glimpses of her inner life. She had been appointed to live apart. She once sallied out as a governess, but society's conventionalities were to her unyielding prison-bars. This caged eagle sickened and would soon have died had she not been restored again to the solitude and freedom of the heath hills of stern old Yorkshire. Her reserve was so intense that when dying she refused, it is said, to admit even to her sisters that she was ill, and they had to see her fade before their eyes without being permitted to perform any of those offices of love which are the heart's only consolation in such an hour.

Her spirit was of masculine mould ; nothing could intimidate her. She had in marvellous measure the Brontë iron nerve and strength of will. She mastered and made her constant mate one of the most powerful, sullen, and ferocious dogs in all that region. He was one of the chief mourners at her grave, slept afterward every night at the door of her old room, whined for her return, and grew prematurely old from sense of loss. When she on one occasion was bitten by a mad dog, she promptly seized a red-hot iron and held it on her arm without flinching until it had burnt itself deep into her quivering flesh, and then she hid for months the fearful secret in her heart until the pain and danger were past. Death itself she finally met with the utmost composure, with even stern defiance.

Charlotte says, "Never in all her life had she lingered over any task that lay before her, and she did not

linger now. She sank rapidly. She made haste to leave us. Yet, while physically she perished, mentally she grew stronger than we had yet known her. Day by day, when I saw with what a front she met suffering, I looked on her with an anguish of wonder and love. I have seen nothing like it; but indeed I have never seen her parallel in anything. Stronger than a man, simpler than a child, her nature stood alone. The awful point was, that, while full of ruth for others, on herself she had no pity; the spirit was inexorable to the flesh; from the trembling hand, the unnerved limbs, the faded eyes, the same service was exacted as they had rendered in health." She remained resolute to the last, refused rest or medicine or stimulant, and stoutly denied that she was ill. Mrs. Gaskell tells us that even on that fatal December morning she arose and dressed herself as usual, making many a pause, but doing everything herself, even going on with her sewing as at any time during the years past, until suddenly she laid the unfinished work aside, whispered faintly to her sister, "If you send for a doctor I will see him now," and in two hours passed quietly away. There was nothing in her tame, or commonplace, or affected. She was the very embodiment of individualism, of spontaneity,—could not brook any patterning after another, was most emphatically self-asserting. Her nature was wholly unique. She was the grand original out of which grew the character of Shirley, that brightest and best of all Charlotte Brontë's creations. A. J. Nichols, an English critic, remarks, "'Wuthering Heights' is, with all its imperfections, one of the most wonderful creations of female genius. It is a rude but colossal

monument of power; a terrible transcript of some of the strangest of the strange scenes which the manners and traditions of that wild country had made familiar to her mind. It impresses us with a remembrance of grandeur like a granite block or a solitary moor."

Reed, in his recent volume, says, "Surely nowhere in modern English fiction can more striking proof be found of the possession of the creative gift in an extraordinary degree than is to be obtained in 'Wuthering Heights.' How vast the intellectual greatness displayed in this juvenile work! From what unfathomable recesses of her intellect did this shy, nervous, untrained girl produce such characters as those which hold the foremost place in her story? Mrs. Dean and Joseph were perhaps drawn from life. But Heathcliff and the two Catherines and Hereton Earnshaw, none of these ever came within the ken of Emily Brontë. No persons approaching them in originality or force of character were to be found in her circle of friends. Here and there some psychologist, learned in the secrets of morbid human nature, may have conceived the existence of such persons,—evolved them from an inner consciousness which had been enlightened by years of studious labor. But no such slow and painful process guided the pen of Emily Brontë in painting these weird and wonderful portraits. They came forth with all the vigor and freshness, the living reality and impressiveness, which can belong only to the spontaneous creations of genius. They are no copies, indeed, but living originals, owing their lives to her own travail and suffering."

These explanations of the origin of this remarkable

work, though eloquent and appreciative, require to be supplemented by a third, which, as it seems to me, the few but emphatic incidents just narrated clearly suggest. Here was the spirit of an untamable Titan prisoned in the frail body of a girl. Temperament and circumstances had absolutely driven her into almost utter social isolation. Her irrepressible individualism, her supreme fearlessness, her restless mental moods, her unconquerable will, her eagle-plumed fancy, all peremptorily demanded expression. Fiction was her only resource, for God had in his inscrutable councils barred against her every other outlet. "Wuthering Heights" is, therefore, regarded by me with exceptional interest, not because of any artistic worth, but because, despite all its imperfections, it serves to body forth the superb soul of Emily Brontë. Without any consideration of the canons of art, of personal interest or of prevailing beliefs, following without curb or bias the promptings of the voice within her, this mighty conjurer summons into her mental presence that monster Heathcliff and those strange companions whose threads of destiny seemed with his inextricably interwoven. What storms of devilish passion burst about her! The very hills quake. Fathomless abysses yawn at her feet, emitting the sulphurous odor and the hot breath of hell. She watches with unblanched cheek, rather with keenest interest, the fearful battling of those elemental forces, set free in these to her now living, throbbing human hearts. She leads Heathcliff along down his terrible career of crime, that she may finally grapple with the fell monster, overpower and trample him down to ruin, palsy his arm, snatch from his burn-

ing lips the last cool cup of pleasure, and then at the close lift his life-long bleeding victims to victory. She glories in the thought of having this strong spirit fight desperately like one of Milton's rebel angels to defeat and destroy all that is lovable in life, and then, when the time is ripe, of dashing him in pieces against the thick bosses of Jehovah's buckler. Emily Brontë stands out on the wide plains of this world's history a solitary mountain-peak, rock-ribbed, fire-seamed, storm-defying, wrapped in proud, peculiar grandeur.

The character of Anne presents in many respects a most marked contrast to that of her sister Emily. The traveller, in descending the broken, precipitous sides of the Jungfrau Alps and entering the vine-clad valleys that bask at their feet, is no more impressed with a sense of change than is he who turns his thoughts from one to the other of these two lives that throbbed out their brief hour amid the solitary bleak barrens of Yorkshire. All the loving home traits were Anne's. The delicate tendrils of her affection twined about the hearts of her sisters. She was of quiet, meditative mood, full of melancholy self-distrust; was gentle, considerate, sweetly patient; of widest charity; of tenderest sympathy for the poor and the sick; of unquestioning Christian faith; of holiest Christian longing. Like Emily, "a constitutional reserve and taciturnity," Charlotte tells us, "placed and kept her in the shade and covered her mind, and especially her feelings, with a sort of nun-like veil, which was rarely lifted." Her contributions to literature consisted of a few poems, only one or two of which have any marked merit; of

the story of "Agnes Grey" and that of "Wildfell Hall."

"Agnes Grey" is a recital in fictitious garb of some of the leading incidents in her life as a governess. But it is so deficient in spirit, is so replete with tame, faded commonplace, that it has never, from the first, elicited the least interest from the reading public.

"Wildfell Hall," however, marks a very decided advance, and to my mind reveals mental gifts which, if they had been allowed further time and more favoring opportunities, would have produced works of permanent value. Even E. P. Whipple, in the midst of his bitter, biting criticisms in the "North American Review," is forced to admit that "the characters are drawn with great power and precision of outline, and the scenes are as vivid as life itself." When we ascertain its terrible realistic basis and the grand martyr-spirit in which its young author penned its pages, we forgive its defects as a work of art in our most profound admiration for it as a work of love. Indeed, a moment's reflection discloses that the very nature and intensity of the purpose which prompted it necessarily produced many of the defects which at the first we are so quick to deplore. Anne had been completely wrapped up in her brother Bramwell, delighted in his brilliant talents, would have sacrificed her own prospects in life to brighten his. This attachment was the one golden romance of her heart. How his subsequent life of shame must have changed her life to one of profoundest misery! Yet neither the pleadings of passionate regard nor the warnings of disease had any power to check him in his mad career.

Month after month her sad eyes saw sin's serpentine coils tighten about him, and the abiding presence of this living death, instead of deadening her sensibilities, deepened them. Death came, but not forgetfulness. Anne brooded over the terrible tragedy until it wellnigh crazed her. Her sensitive nature had ever instinctively shrunk from the least publicity. How could she break silence now, and on such a theme? How could she make public that shame whose dark shadow had so long rested on the threshold of her home and on her own breaking heart was even resting now? But such was her profound sense of duty for the living, her Christ-like, compassionate love for the weak and tempted, that she sublimely resolved to give to the world, under the forms of fiction, a faithful transcript of the wasted life of Bramwell Brontë. It was a costly sacrifice. It caused the heart that made it many a bitter pang. Day after day she sat at her task, but her pen never faltered. All the dark, repulsive features of sin were sketched true to the life. We may look on this as an instance of morbid conscience. Her sisters so thought, and tried to dissuade her from her plan. We may with them pronounce her effort futile, and ascribe the failure to an utterly uncongenial subject selected through a mistaken sense of duty; we may regret the loss, thereby, to art of her gifts of thought and winsome grace of diction; yet, as "*Wuthering Heights*" is prized principally because it resounds with the shrill war-cry, the grand Marseillaise of a spirit fearless, strong, and stormy, so "*Wildfell Hall*," whose pages are fragrant with the frankincense of a most fervid piety and self-forgetting love, will be cher-

ished, even regarded reverently, as the pure heart-offering of one whose brief, blameless life God saw fit to overcast with cloud. The misconception and abuse which her book brought her never wrung from her pained yet patient heart a single complaining word in reply. Throughout her last illness her study seemed to be how to lessen others' pain and hide her own. She met death with the same calm front as had her sister five months before; but while Emily in bleak December, within the cold stone walls of the parsonage she would never leave, confronted God's stern messenger with the proud bearing of a plumed knight, Anne, on a bright May day, at the sea-side, her mind in perfect peace, confidently fell asleep, like a tired child in the arms of its loving mother.

In mood almost prophetic she wrote a poem just before "she laid aside her pen and closed her desk forever." Though she did not so purpose it, yet it proved her heart's last legacy. We know no more fitting epitaph to be graven on the marble that marks her final resting-place. Through its touching pathos there breathes a submissive, holy, tranquil trust. In its conception we discover how

"Love took up the harp of Life and smote on all its chords with
 might,
 Smote the chord of self, that trembling passed in music out of
 sight."

Let us read it once again, and heed the lesson that it teaches:

"I hoped that with the brave and strong
 My portioned task might lie;
 To toil amid the busy throng,
 With purpose pure and high.

- “ But God has fixed another part,
And He has fixed it well ;
I said so with my bleeding heart,
When first the anguish fell.
- “ Thou, God, hast taken our delight,
Our treasured hope, away ;
Thou bidd'st us now weep through the night,
And sorrow through the day.
- “ These weary hours will not be lost,
These days of misery,
These nights of darkness, anguish-tost,
Can I but turn to Thee,
- “ With secret labor to sustain
In humble patience every blow ;
To gather fortitude from pain,
And hope and holiness from woe.
- “ Thus let me serve Thee from my heart,
Whate'er may be my written fate ;
Whether thus early to depart,
Or yet awhile to wait.
- “ If Thou shouldst bring me back to life,
More humbled I should be,
More wise, more strengthened for the strife,
More apt to lean on Thee.
- “ Should death be standing at the gate,
Thus should I keep my vow ;
But, Lord ! whatever be my fate,
Oh, let me serve Thee now !”

While “The Professor” was going the weary rounds of the London publishing houses and meeting with repeated rebuffs, Charlotte Brontë, nothing daunted, again put pen to paper, and it was not long ere the praises of

the unknown Currer Bell, the author of the glowing pages of "Jane Eyre," were sounding on the lips of all England. Two years after its appearance, in October, 1849, she published "Shirley," and in 1853, "Villette," the last and most elaborate of all her works. "The Professor" was incorporated largely into "Villette," and remained in manuscript until long after her death. "Jane Eyre" has been translated into nearly all the languages of Europe, and has been dramatized for both the English and German stage. People still flock to the playhouse to be thrilled by its pathos. Publishers have not yet satisfied the popular demand for the book. Rarely in any civilized country can a hamlet be found where hearts are not still held spell-bound by this wizard of story. The author's other works have also everywhere been greeted with rapturous applause. It is now universally conceded that her writings possess pre-eminent and permanent value and have placed her fair fame beyond any of the accidents of time. As Charlotte was the eldest of the three sisters, and possessed by far the firmest health, her genius was less immature and of less morbid mood. In her are found Emily's restlessness, her masculine force and fire, but they are found tempered by a gentle loving trust, that pleasantly reminds us of the younger Anne. Her heart carried as heavy a load of sorrow as theirs, and carried it as bravely; her lyric soul as passionately longed for utterance, and seemed by nature as peremptorily denied it in every form but that of fiction.

The overruling Providence that thus turned into this channel the rich magnificence of this gifted mind served to promote two greatly-needed reforms in the

department of Belles-Lettres. To the great majority of mankind, travelling through the arid deserts of everyday life, how refreshing to drink from the bubbling spring and lie under the cool shade of an oasis of fancy ! The worthy novel is an almoner of vigor to our jaded minds. Not only does our blood bound again healthily and our minds regain their wonted elasticity, but the noble impulses of our souls are quickened, and we pass into a higher, holier life, thanks to the good genius who, remembering us in these our times of need, touches the heart's sensibilities with the hand of a skilled magician.

It is the office of the novelist to introduce us to the hearts and hearth-stones of private life. The grave questions mooted at council-boards, in senate-chambers, or in the laboratories and libraries of the learned, the grand and stirring incidents in national history, the pomp and circumstance of war, are introduced, if at all, but as episodes, or as background on which to paint with intenser vividness or more charming grace the individualism which the story is intended to body forth. Though the novel's theatre of action is necessarily narrower, less imposing, than that of history, its very concentration of attention on some coming climax in personal destiny multiplies its plastic power over the lives of the readers a thousandfold. It has the advantage even over Biography in that it pictures only those supreme moments, those pivotal periods when souls feel their wings and fix their fates, and in that over the romance of the fireside the colored calcium light of the imagination is made to shed an especial splendor. Fiction has largely superseded every other form of writing,

and has already become one of the mightiest of the mental forces. When Charlotte Brontë began her career the prevailing novel was little else than a travesty on both nature and life, an extravaganza, a fairy-tale. She was one of the first to introduce the spirit of pre-Raphaelitism. This was not done with any pre-concerted purpose of reform. She was simply a fiery, free, and fearless spirit who had felt deeply, observed acutely, and poured out without a scintilla of politic reserve, and with wondrous gift of utterance, the thoughts that burned within her. She was honest and frank to the core. She had passed through a furnace of fire. Her heart overflowed. Neither gold nor glory could swerve her a hair's breadth from her determination to portray life precisely as she found it. Adverse criticisms, misinterpretations, sad lack of appreciation, the earnest entreaty of loved friends, the supposed imperative demands of high art, all failed to deter her from speaking out the truth as God gave her to know the truth in her own inimitable way. Hers was a case of absolute loyalty to nature and to self. A more faithful, a more utterly undistorted transcript of a human soul can nowhere be found in all literature.

In a letter to Mrs. Gaskell, alluding to a novel this eminent author was then writing, she remarks, "My heart fails me already at the thought of the pang it will have to undergo. And yet you must follow the impulse of your own inspiration. If that commands the slaying of the victim, no bystander has the right to put out his hand to stay the sacrificial knife; but I hold you a stern priestess in these matters." Her private correspondence abounds in expressions that voice

this same spirit of reverent loyalty to self. "No matter whether known or unknown, misjudged or the contrary, I am resolved not to write otherwise. I shall bend as my powers tend. The two human beings who understood me and whom I understood are gone. I have some that love me yet, and whom I love, without expecting or having a right to expect that they shall perfectly understand me. I am satisfied, but I must have my own way in the matter of writing. I am thankful to God, who gave me the faculty, and it is to me a part of my religion to defend this gift and to profit by its possession."

She was exceptionally dutiful and devoted to her father, would gladly sacrifice her time, her ease, her personal preferments in almost every regard, to lighten his load of care and ease his pain; but there was one department of her life where even he must not intrude. She would, if his interests required it, lay aside her pen, but, if her conscience consented to her using it, no one, not even her imperiously-willed father, was suffered to infringe upon its perfect freedom. She had determined that Paul Emanuel should never marry Lucy Snowe, but finally perish in a storm at sea. Her father besought her to give "*Villette*" a happier ending. But no; in her musings the storm had gathered and burst over the fated ship, and the wild waves' requiem was ringing in her ears. Her imagination had brooded over that last scene until it was as sharply outlined in her thought, as intensely real, as if it had been some haunting memory. She loved Paul Emanuel, for underneath his many faults and foibles, his irascible restlessness, there was a heart grandly true

and tender. The conception and portrayal of this fervid professor had been the joint work of Charlotte's ripened genius and burdened, breaking heart. About him her thoughts ever lingered lovingly, perhaps in fond remembrance of certain privileged days in Belgium, when for her the gates of heaven were left ajar. How gladly she would have rescued him! Her hot tears fell, but the scene that had flashed upon her in one of those strangely creative moods impressed her as so profoundly real, and so profoundly true to the world's troubled life, that she felt that to have gratified her father, or the reading public, or the sharp-tongued critics, or even the blind promptings of her own sympathies, she would have proved recreant to her trusts. She consented to throw over the scene a thin veil of ambiguity, nothing more. It must stand substantially as she at first conceived it, though it was the closing chapter, the climax, in what she had looked upon as her masterpiece. It was in this same novel, somewhat toward its close, after the sympathies of her readers, fallen under the spell of her genius, had been wrought up in the fates of her personages, that she had the hardihood to introduce an entirely new set of characters, to change abruptly the whole current of feeling. No romancer had ever before thus risked success. She had clearly foreseen the danger, as she afterward frankly confessed, but she in a sense felt it compulsory upon her to make the change, lest otherwise she might fail to paint to the life, so irresistibly were the tides of her being set toward realism. Determined to have her fancies in consonance with fact, she would never trust herself to write whenever her ideas lost their distinctness or verisimil-

itude. There were times when from this cause her pen lay idle for weeks together. It was her wont on these occasions to think about the subject or scene intently night after night, just before retiring, to study out as nearly as possible how it would be or what it was like, until some morning the mists would suddenly lift from off the face of her mental landscape and every minutest object and outline stand revealed. Her pen then seemed to picture what her eyes actually saw, so rapid the strokes, so rich and realistic every touch and tint on the canvas. This singular habit of hers she incidentally alluded to in a conversation with an opium-eater. He, while reading one of the scenes in "*Villette*," in which the effects of the drug are described, had been so impressed with the truth and vividness of the picture, that he ventured to ask her whether she had ever taken the narcotic, and to his astonishment learned that she never had. He confesses himself unable to account for the phenomenon on any psychological grounds, but adds, "I am sure it was so, because she said it." It may, however, be satisfactorily explained as the work both of what is now recognized as sympathetic imagination and of some unconscious automatic mental action. The first, Shakspeare is supposed to have called into play in depicting as he has so masterfully every phase of a disordered mind. The second, Dr. Carpenter argues in a very able and learned paper, constitutes the very basis of what is known as common sense. Charlotte doubtless was ignorant of the mental laws under which she worked, but in her heroic determination to know the truth and with sealed lips to wait till she found it she unconsciously fulfilled the

very conditions precedent to success. Her preternaturally nervous temperament had given her hours of deep depression and of wild ecstasy. A Coleridge or a De Quincey had never, even in their most unnatural excitements, experienced wider extremes of emotion than this solitary, singularly abstemious woman had passed through amid the almost unbroken quiet of that bleak Haworth home. By combining what she had read or what had been told her as to the effects of opium with her own turbulent heart-history, her mind had in its periods of unconscious working solved the problem given it. These hidden mental processes came to her rescue in many an emergency during the progress of her stories, and the revelations thus obtained she transcribed with strict fidelity and placed implicit trust in their truth. Her confidence was seldom misplaced, because her mind in these seasons worked without trammel, and worked on material drawn largely from her own keen, shrewd seeing and her own deeply spiritual life, because in her choice of subjects she, conscious of her limitations, firmly refused to enter fields that were unfamiliar, however important or enticing, or touch on topics that failed to elicit from her a genuine sympathetic response.

She believed that she had no faculty to handle any of the topics of the times or illustrate any scheme of philanthropy, and she accordingly never attempted it, though her many gentle unostentatious charities convince us that she had deep sympathy for the burden-bowed and sorrowing of God's children. "She voluntarily and sincerely veiled her face," so she writes to a friend, "before such a mighty subject as that treated in

‘Uncle Tom’s Cabin,’ but she believed that to manage these great matters rightly they must be long and practically studied, their bearings known intimately and their evils felt genuinely ; that they must not be taken up as a trading speculation.” She thought that Mrs. Stowe must herself from childhood have sat within the blighting shadow of American slavery ; that words of indignation at sight of its cold cruelties must have leaped from her lips like swords from their scabbards ; that her heart must have throbbed with profoundest pity witnessing the sad partings at the auction-block or listening to the lash of the overseer as it wrapped its bloody coils about the bared backs of the bondmen in the sweltering cotton-fields of the South.

Prompted by such a spirit of stanch loyalty to self and to truth, she naturally breathed into every page and paragraph of her writings a peculiar personal charm ; her thoughts grew deep and clear as wells and full of heart-beat ; her vision, while singularly narrow, was also singularly searching. Few writers have ever discovered for us such depths in human nature, made their plots and personages so distinctly real, pictured passion at such white heat, followed the guidings of their genius with such fearless faithfulness and fervor, penned passages so incisive, direct, compact, so fresh and free, so full of force and fire. To the great public who knew nothing of the guiding principles of her inner thought-life, it was rightly a matter of marvel, how out of such narrow experiences, such scant material, she wrought works of such transcendent value. The hiding curtain has been partially drawn aside from before the world of fact out of which she fashioned her world of fancies.

We now know that Wilson, the founder of the clergymen's daughters' school at Corwan Bridge, has with all his defects been by her forever embedded in clear amber under the *sobriquet* of Brocklehurst. The terrible experiences of herself and her sisters at his institution have been pictured with startling vividness, though, as she always maintained, without over-coloring, in the opening chapters of "Jane Eyre." Elsewhere, Cartwright, a former local celebrity of Yorkshire, reappears in Robert Moore; Monsieur Heger, with whom for a time she was associated on the Continent, in Paul Emanuel; her father's curates, in Malone, Donne, and Sweeting; her life-long friend Ellen, in Caroline Helstone; her sister Emily, in Shirley; and herself, in Lucy Snowe. Her sketches of Yorkshire life and rugged powerful character, of local manners, traditions, and scenery, were, in "Shirley," so vivid and true that they at last disclosed the secret of authorship, which till the appearance of this work she had with most scrupulous care concealed even from her publishers. By this her firm, unswerving adhesion to truth, her faithful picturing of life as she found it among the hills of Yorkshire, she unconsciously uncovered to the reading public a new world full of strange charm.

While this her intense realism saved her from becoming melodramatic or sensational, her most eccentric characters impressing every one as living verities, it exposed her for a time to the charge of coarseness. E. P. Whipple, one of the most eminent of our American critics, while charmed with her clear, distinct, decisive style, her freshness, raciness, vigor of thought, strongly animadverted in the "North American Review" against

her introduction of scenes of courtship full of displays of mere animal appetite after the manner of kangaroos and the heroes of Dryden's plays ; against the introduction of such misanthropic profligates as Rochester, with his profanity, brutality, and slang, giving torpedo-shocks to the nervous system ; and especially against her dealings in moral paradox, the hardihood of her assaults upon the prejudices of proper people, her attempts to wound the delicacy of the refined, her daring glances into regions which acknowledge the authority of no conventional rules. He thinks the author has made the capital mistake of supposing that an artistic representation of character and manners is a literal imitation of individual life.

How a critic so justly eminent for his analytic and discriminating powers could have in this instance so mistaken the writer's intent, the actual quality of her work, or the influence it was fitted and destined to exert over the morals of private life, it is wellnigh impossible to conjecture, for a purer-minded woman never put pen to paper, and, instead of her anywhere manifesting the least sympathy for anything coarse or low, no one could protest with more genuine earnestness against every ignoble impulse, or present to the weak and tempted scenes and phases of character so full of high incentive and of sustaining hope. George William Curtis, equally eminent with E. P. Whipple in the world of letters, expressed an opinion seven years after directly antagonistic to his, and in it he has voiced the calmer and more just judgment of to-day. He says, " Contrasted with the splendors of *De Staël* and the lurid brilliancy of George Sand, and with all the flickering fading

gleams of the female novelists, Charlotte Brontë's light shines pure and planetary. It is by that light that the anxious voyager will head his bark, it is to that calm power the literature of England will long be indebted for a truer tone and the lives of Saxon women for a sweeter inspiration."

I have again read "*Jane Eyre*" for the express purpose of ascertaining whether there are any just grounds for Whipple's adverse criticisms; and I am more surprised than ever at his decision. Jane's love for Rochester was natural and legitimate, for it was founded on Rochester's display of the manly qualities of decision and strength of will, of keen intellect, of positiveness of temperament, of depth of feeling. To her he stood in marked contrast with his guests. Rochester, long since surfeited with the gay, heartless masquerading of fashionable life, loved her for her frank, free, independent, vigorous, unconventional modes of thought and expression. They were both of intense and positive temperaments, and the close reticacy of her life and the peculiar circumstances of his could but increase their fervor. Their sentiments toward each other were unquestionably pure and elevating, being in no sense called out by any external attractions, but solely by internal, spiritual ones. Rochester's conduct toward Jane was prompted by all the better impulses of his nature, growing out of his desire to break away from his past courses and lead a truer, higher life. There was something in each other's brain and heart deeply responsive, which ripened at last into an abiding love. Rochester, in concealing from Jane his domestic misfortune and attempting to marry her while his insane wife was still

living, was, as I conceive, misled by a mistaken judgment rather than by any unworthy motive. His subsequent conduct was full of self-sacrificing heroism ; and after fire had finally freed him, and after fiery trials had humbled and Christianized his spirit, his little Jane again found her way back to his heart and home, and the evening of their lives was goldened with the glow of fireside content.

There is one instance, and but one, it is said, in which our artist attempted to create a character without a living model. The delicate, petite Paulina, who figures in "*Villette*" as the playmate of the boy Graham, and afterward as the angel of his household, was purely a creature of the imagination. In her case there was no realistic basis, and the author seemed fearful lest there was fatal lack of realistic warmth of color. She says of it, "I greatly apprehend, however, that the weakest character in the book is the one I aimed at making the most beautiful ; and if this be the case, the fault lies in its wanting the germ of the real. I felt that this character lacked substance. Union with it too much resembles the fate of Ixion, who was mated with a cloud."

Charlotte had the merit of introducing real life into fiction simultaneously with Thackeray, and her "*Professor*" was completed before George Eliot, a disciple of this same school, took up her pen. "*Jane Eyre*," it has been remarked, "was, like '*Vanity Fair*,' the initial work of a new era." Her spirit is much more to be commended than Thackeray's, for while he with her has introduced into story the flesh and blood, the laughter and tears, the loves and hates and hopes, of Earth's

living sons and daughters in place of the impossible abstractions they found in literature galvanized into mimic life, there was too much of heartless raillery in his tone ; he too keenly relished pointing with the fiery finger of scorn at the faults and foibles of the age ; the rôle of the satirist was evidently too much to his liking. Charlotte looked with a kindlier eye and with a larger hope. Her characters had in them a preponderance of good, which it was her delight to develop and bring uppermost at the last. Our warmest sympathies are elicited as we see them battling for a better life, and we are thereby inspirited for our own grim contests with self and sin.

While she in Helen Burns drew with perfect faithfulness the untidy and disorderly habits of her sister Maria, and with inexorable spirit visited her with the sad and natural consequences of her faults, she also caused her sterling qualities to shine through, showed her wide acquaintance with literature, her genuine love for it and poetic appreciation of its excellences, her spirit of contrition, her patient uncomplaining endurance, and her calm Christian faith. Although on her little grave had already fallen the snows of twenty-five Decembers, her love for her despite all her defects bursts forth in undiminished ardor in that picture of parting where Jane Eyre steals up to Helen's room at midnight to kiss her a long good-by, and both lie locked in each other's embrace, talking of heaven, till they fall asleep, one to wake on earth, the other among the angels.

Rev. Robertson, and also her own father, reappear in Helstone with a redeeming light thrown over their

stern martial qualities. She counts them among those many misplaced people in the world who have admirable gifts for other spheres from which some uncontrollable circumstance or their own mistaken judgment has precluded them. She shows how nature designed them for Cossacks, not priests,—for the battle-field, not the cloister. There is, too, in Rochester's nature a noble undertone which finally asserts itself. Her works leave in the mind no rankling bitterness, they prompt to no railing accusation; they lead to a Christ-like charity, they illumine with a Christ-born hope.

George William Curtis, in 1855, in a paper already referred to, remarked, "The English fiction of the last fifteen years has a dignity and worth it never had before. It has acquired a seriousness, a depth, an earnest aim which was quite unknown. It has been touched by the tender humanity of the time. That mysterious spirit of the age has laid its finger upon it." The writings of Charlotte Brontë exerted no small influence in effecting this great reform. We cannot overestimate the good she thus unconsciously accomplished in being thus fearlessly frank and true.

This same determination to paint life as she saw it made her among the first of psychological novelists. Loyal to her conception of the real matters of moment, she seldom endowed her heroes or heroines with beauty or wealth or high rank, the development of soul-qualities being her prime purpose. This according of precedence to the inner life was a wide departure from the prevailing method, doubtless the result of her own heart-history, for her breast had long been the battle-ground of fiercely contending armies. She was naturally in-

tensely introspective, and upon these hidden spiritual conflicts, so fraught with momentous issues, her interest had so centred, she resolved that the mere accidents of birth and of beauty should on her canvas serve, if at all, but as background on which to paint what she knew best, felt most deeply, and believed of vital and lasting value. Her novels were the earnest crying out of a grand soul shut up within a body short, thin, and plain, full of shrinking nerves and clad in rustic garb; of a loving nature belied by a constrained manner and by a quaintly precise and formal speech. Constitutional sensitiveness and solitude, both forced and courted, together with infirm health, had largely unfitted her to relish the excitements of the drawing-room or to carry off any of its brilliant prizes. The attempt was once made to lionize her in London, but she proved too plain and unpretending for hero-worship, and although every kind attention was paid her during her brief visit to the "Big Babylon," she pined for her lonely Haworth home. Conscious that there were other such imprisoned souls, she sought to unveil their worth, to disclose to the multitude those spiritual excellencies that far transcend all others. Carrying out this purpose, she has accomplished what few have ever dared attempt: she has denied many of her principal personages nearly every personal grace, nearly every advantageous circumstance, yet by the magic of her genius has drawn all hearts unto them, and made them in very deed the loved and laurelled heroes and heroines of the hour.

Charlotte Brontë, while thus singularly true to life and to nature, was by no means a mere daguerrotypist, contenting herself with penning the plain annals of

a neighborhood or slavishly copying such aspects of hill and field and sky as attracted her attention in her rambles over the moors. Her material, while realistic, was moulded by a hand that was creative. She took pains to select the germs of her characters and of her descriptions from the world of fact; she took equal pains to develop those germs in strict accordance with established law. In "Shirley," for example, she incorporated the cardinal characteristics of her sister Emily, but in giving to her temperament, her circumstances and destiny, a summer aspect, she necessarily introduced a wide circle of change, departing thus from fact, yet not in a single particular from essential truth. On this, her favorite conception, she so freely poured the rich magnificence of her genius, that "Shirley" stands to this day one of the most masterly pen-portraits in the range of English fiction. She felt a genuine and even a passionate love for the scenery about her. She had studied with patient accuracy and had noted with keenest sense every changing mood of earth and sky. She dealt in specifics, summoning cloud and wind and rock to enforce and vivify her thought. Her allusions to nature were always felicitous. Her "atmospheric susceptibility" was phenomenal; it was one of the prominent features of her genius. Yet over all her descriptions of nature she threw the robe of her fancy; over some the transforming might of her imagination; for she was not alone an original and acute observer, she also regrouped into new scenes the lights and shades, the lines and tints, which she reverently received as suggestions sketched by the pencil of a Divine artist.

"She," as Bayne has remarked, "takes features here and there, and, by combination, new-creates pieces of poetic conception distinct not only from the general texture of her composition, but, so far as we know, from anything in the English language."

Swinburne says of one of the passages in Louis Moore's diary, as given in "*Shirley*," "Nothing can beat that; no man can match it; it is the first and last absolute and sufficient and triumphant word ever to be said on the subject. It paints wind like David Cox and light like Turner. To find anything like it in verse, we must go to the highest springs of all,—to Pindar, or to Shelley, or to Hugo." Miss Brontë's personifications of thought, though not equal to Shelley's, yet stand pre-eminent in the province of story as does his in the higher province of song. The most striking of these is where *Shirley* sees Nature a woman-Titan kneeling before the red hills in evening prayer. The Mermaid, Temptress-terror of the Northern seas; the demon of loveless marriage, masked Death; the foam-women wantoning in the rocks, white, evanescent daughters of Nereus; the uncared-for orphan, Humanity, weeping in the lone wood, pitied, soothed, won by the voice of Genius, an unseen seraph of the sky, who, after centuries shadowed with sin, led his spouse, redeemed, to upper bridal chambers; these pictures, and others such as these, scattered throughout Miss Brontë's writings, mark an imagination marvellous in creative power, Grecian in the chaste beauty of its conceptions, at times fiery and terrible as that of the poet Æschylus.

In "*Jane Eyre*," too, and also in "*Villette*," we chance upon lakelets of thought, nestling here and

there amid the earth-shadows, on whose waters, tossed with passion, there rests the glimmering splendor of starlight.

Charlotte Brontë, by her stanch individualism and loyalty to truth, her fearless freedom of thought and utterance, became not only one of the founders of the schools of realistic and of psychological romance, but a most strenuous advocate of the doctrine that natural affection should be an absolutely indispensable prerequisite to marriage. She dwelt upon this theme until its importance became, in her judgment, paramount to all others, and she felt that it was the one gospel of duty and of privilege she had been commissioned to proclaim. She had all that unquestioning conviction and consuming zeal that fire the hearts of the world's reformers and are so necessary to carry them through to victory; and, in consequence, she apparently fell into their characteristic error of overstatement; she certainly met their common fate of misinterpretation and of hope deferred. She doubtless was oppressed with a sense of the momentous issues at stake in entering upon the relation of husband and wife. This union, unless love cement it, soon becomes a bondage most abject and galling. Without affection the family circle is broken, the atmosphere is shot through with the chill of death. Without its sweetening influences estrangements inevitably arise as personal defects and weaknesses come to light during years of hourly intimacy, through the many petty provocations of every-day life. The children, those tenderest of sensitive plants, are quick to feel any subtle change in the spiritual forces constantly emanating from the

hearts of the household, however painstaking and persistent the efforts at repression and concealment; and irreparable loss is by them incurred when they are deprived of the ennobling presence of affectionate self-sacrifice. There is withal most imminent peril of transmitting at birth to their immortal natures tendencies that may at the last scald their cheeks with tears or freeze their hearts to ice. In the Scriptures a peculiar sacredness is ascribed to this relationship. Jehovah institutes and hallows it. It is even selected as a fitting symbol of Christ's mystic union with His Church, a union cemented by a love divine.

Charlotte, while profoundly meditating on these issues, temporal and eternal, involved in it and its solemn consecration in God's word, was doubtless equally oppressed with a sense of the unthinking, reckless haste, the nonchalance, the cold, calculating selfishness, the mistaken though often well-meant purpose, with some one of which young and old, rich and poor, wise and ignorant, saint and sinner, the world over, assume the awful responsibilities of the married state. She knew, alas! too well, that multitudes wed comparative strangers, without care of consequences, multitudes more marry from motives of gain, or of pride, or of ambition. She knew some were coaxed, some driven, some beguiled into wedlock to build up others' interests on the ruins of their own. She knew that many by false casuistry choose life-partners solely to further plans of philanthropy or to promote the cause of Christ. And this last misuse she felt no hesitancy in denouncing as downright desecration.

Against this almost universal trespassing upon the

sacred prerogatives of the heart she entered a brave and burning protest. The thought that she, a little lone woman, in this act placed a lance in rest to tilt against a whole world in arms, instead of affrighting her spirit, fired it till her words were tipped with lambent flame. She sought to expose the self-blinding and joy-destroying sophistry of the religious zealot, the purse-proud parent, the thrifty-minded lover, and the dazed admirer burning his moth-wings in the blaze of beauty or of brilliant gifts. She was the pronounced foe of society's empty conventionalities, sought to break their chains, longed for love to burn through custom, cant, and caste and hallow with its holy fire the inmates of every human home. She shuddered at the terrible awakening of those who discover when too late that there exists between them and their life-comrades no constitutional congeniality, no genuine soul-sympathy, but rather such discordance in temperament, in tastes, and in talents, that only mutual forbearance will prevent antipathy; that not even the most exceptional grace will render possible anything better than chill sentiments of respect.

We can never be too thankful that she turned the full splendor of her genius upon this almost universal social evil of marriage without love, for even the best-intentioned among us are in danger of falling under its curse through an unwitting acceptance of the fatal fallacy that there are no special conditions under which alone love lives. Over the human heart the human will does not sit sovereign. Even in the realm of feeling there is the reign of law. The enactments of the Almighty we can no more abrogate in this department than in any other of his wide domain. The conditions which we

are forced to fulfil to cause wood to burst into flame are no more definite and fixed than those under which our hearts are fired with affection. Chemists and psychologists have each discovered in their respective fields that the elements in the one of matter, in the other of mind, absolutely refuse to unite except in accordance with laws of affinity and of proportion that are alike immutable and mathematically precise. Musicians, painters, and sculptors in producing their masterpieces obey laws of harmony in sound, color, and form no more rigid than those that prevail over human hearts in the exercise of their social functions. In only one particular have we the gift of spontaneity. In motives of conduct we have perfect freedom of choice, and on this fact is based our moral accountability. Within a certain prescribed sphere the will is not only free, but is also an original fountain of force; without that sphere it is shorn of both its sovereignty and its strength.

An opinion widely prevails that persons toward whom we entertain sentiments simply of respect or of admiration are certain to become, if we so order it, objects of tender and lasting love. This is an error as radical as it is disastrous. Love is awakened only after thrilling, spiritual harmonies are sounded during some intimate interchange of thought and feeling. Few are sufficiently reflective or metaphysical to search for the source of that sweet, strange music; none possess the prescience to divine who among their acquaintances have tastes, temperaments, and talents sufficiently complementary to their own to awaken those subtile soul-symphonies without which love is impossible. That each party is in every way worthy of the other's re-

spect, or even of admiration, will by no means suffice. An incident in Charlotte Brontë's personal history is a case in point, and doubtless we can each of us furnish corroborative evidence in incidents from our own. She remarks in a letter, "Could I ever feel enough for — to accept of him as a husband? Friendship, gratitude, esteem, I have; but each moment he came near me and I could see his eyes fastened on me, my veins ran ice. Now that he is away I feel far more gently toward him; it is only close by I grow rigid, stiffening with a strange mixture of apprehension and anger which nothing softens but his retreat and a perfect subduing of his manner. I did not want to be proud, nor intend to be, but I was forced to be so. Most true it is that we are overruled by One above us,—that in his hands our very will is as clay in the hands of the potter."

Grating discords may come from a union based on bare respect; a studied kindness may, possibly a passionate love; but which of these will be the issue only God can foresee. To enter into such a marriage is to make a leap into the dark with the chances overwhelmingly against us. What shall be said of the prospects of those who even neglect this precaution and follow the promptings of pride, of avarice, or of ambition?

So vital is this truth which our author teaches, so far-reaching in its effects, and, to our shame be it spoken, so almost universally disregarded, no wonder that to her earnest soul it became the one absorbing subject, that solely on its illustration and enforcement she was willing to spend her life and rest her fame.

Charlotte in her teachings had more especial reference to English homes, and her experiences convinced

her that only the most vivid and vehement utterances ever could break through that tough armor of native phlegm and of self-satisfied, obstinate conservatism which so encases English hearts.

When to the foregoing considerations we add another, and perhaps the most important of them all, that behind the shy and reticent deportment of this lonely and suffering woman were concealed a capacity and a craving for affection which would have ended either in insanity or, what is worse, in stolid stoicism, had there not been present an exalted sense of duty and a granite will, we are prepared not only to fully comprehend her course but to award it our highest commendation.

Yet these volumes of hers, which we, reading as we now can between the lines, know to be veritable histories of intensest heart-hunger, encountered many a stinging criticism from the press. Even Harriet Martineau, one of Charlotte's most trusted friends, caused her deep pain directly after the publication of "*Villette*," by pointing out with sharp pen as a notable blemish that all the author's female characters in all their thoughts were represented as being full of the one thing—love, which should not be held up as the be-all and the end-all of a woman's life. Perhaps, as another has suggested, she would have less readily and rudely condemned had she known with what self-sacrifice Charlotte had but a few weeks before set aside her own preferences and inclinations and submitted her lot to her father's angry will. This strange parent, on his daughter's telling out of her full heart the story of the attachment for her of Mr. Nicholls, his curate, and of his offer of marriage, fell into a towering rage, "the

veins on his forehead," as she afterward related in a letter, "starting up like whip-cord and his eyes suddenly becoming bloodshot." She, apprehensive of the effects of his passion, not on herself but on him, made haste to promise that on the morrow Mr. Nicholls should have from her a distinct refusal. We know how faithfully she kept her pledge; but at what untold sacrifice of feeling she performed her filial duty, we can never know. The substantial soundness of Miss Martineau's criticism, considered in itself, it would be idle to controvert. Even Bayne, one of the most admiring and sympathetic of all Charlotte's reviewers, is constrained to pronounce her works an ovation of one relentless and tyrannizing passion. Though this is in a measure true, yet it seems to me that these writers give to the defect an undue prominence and present it in a false light by failing to account for its origin. The author is thus not only robbed of her just meed of praise, but her readers are needlessly left exposed to mischievous influences which no one would more profoundly regret than she. In order to understand rightly and be profited by any great original work of fiction it is wellnigh imperative that we know both by what manner of person and under what peculiar stress of circumstances its pages were penned. If ever there was a genius sent to this planet with a Divine commission to electrify society by the promulgation of a principle of transcendent moment, it can be safely claimed that Charlotte Brontë was thus sent. She possessed those wondrous gifts of vision and of expression, that depth of conviction, that consuming zeal, that downright candor and all-conquering courage, that devotion to truth and

to duty, which so distinguished those grand old Hebrew prophets who durst warn kings and people of coming retribution, whose voices yet ring down the centuries. I also detect in her their marked limitations, their lack of mental equipoise, of philosophic calm, of breadth of view; and I am led to question whether, when God selects his special messengers, he does not designedly choose from among those very ones all whose tides of being flow vehemently and with resistless strength through a single straitened channel. From them come the world's reformers and martyrs, its devotees to art and science, its specialists in every department of thought and action. It is only by combining the different-colored rays that stream from minds of different transmitting power that we are able to secure the stainless white light of God's truth. Such is our finiteness that when once we begin to concentrate our attention and our sympathies upon any one object it grows daily in our esteem until every other is unduly dwarfed before it or lost sight of altogether; and I believe this wisely ordered; for not until the apparent value of the object is thus disproportionately enhanced do we become willing to suffer for it, and, if need be, to die for it. Charlotte was by constitution of pronounced predilection, of positive opinion, of passionate zeal, of penetrating glance, of powerful will. It was thus God made her; it was thus he kept her to the last by a series of most remarkable providences, causing her to pass through ordeal after ordeal of purifying fire. Consequently, as this really vital social question attracted her attention, it absolutely absorbed it. She was a born enthusiast. We should welcome her as such, and give God thanks, re-

garding her faults simply as those of her class, such as uniformly, and I may say necessarily, accompany those commanding qualities that render their possessor one of the great agitating and reforming forces so indispensable to the world's life. While we regret that she but incidentally pictured any of the higher forms of love, that she gave undue prominence to the blessings dispensed by the love she depicts, and gave to that love an undue fervor, we should also keep in mind that the passion is always pure, and that her characters are, with rare exceptions, of the sinewy and ardent Yorkshire type, fitted for mightiest stress of emotion; and we should especially remember those incomparable scenes, in one of which Jane with blanched cheek and lacerated heart, yet with steadfast front, turns away from the tempting sophistry and wild pleading of Rochester, in another from the still subtler sophistry of the Rev. St. John Rivers. "The epic heroism of little Jane," says an able critic, "while it reaches the climax of its grandeur, reaches also the height of its practical value. In the hour of sorest need the figure of that invincible girl may rise with a look of real and potent encouragement to steel many a heart to defy the devil to the last."

It has been urged against Charlotte that she not only has failed to give any representation of that pure and lofty love that allies us to God and man, "illuminating the universe with the mingled lights of heaven and home," but has in St. John Rivers presented "a caricature which, while wondrous in execution, is utterly false."

To the first part of this accusation I reply that she

has, on the contrary, left us in the pages of "Shirley" an admirable illustration of this highest love in the person of Cecyl Hall, although, I regret to add, he is but incidentally introduced, hurriedly and imperfectly sketched, and assigned an unimportant part in the plot; to the second I would say that St. John was no more designed than were the famous three curates in the opening chapter of this same book to illustrate the transforming power of Christ's love, but meant to stand merely for that class of religionists who have in their experiences advanced no farther than the seventh of Romans' bondage to the law, having yet to learn of the eighth of Romans' liberty of love. Just such a character was needed by her to enforce that important truth that even a Christian's most sacred consecrations can never properly include a consent to marriage without love, that there are no exigencies or interests in Christ's kingdom demanding it, but that rather the Bible's plainest teachings pointedly condemn such infringement on the heart's prerogatives. St. John deservedly went away "joyless and marble-cold on his high mission;" for whatever of love-passion burned within him had been, under a mistaken judgment and by might of will, as effectually walled in against all human approach with desolate fields of arctic ice as is to-day the open Polar Sea.

Bayne, in an addendum to his paper, called out by the issuance of Mrs. Gaskell's Biography, makes the grave charge that Charlotte, when she ceased to be artist and became woman, consented to marry one toward whom, according to her own express declaration, she entertained simply sentiments of respect. This is so

utterly inconsistent with all she taught, so humiliating a confession of weakness, so improbable in view of her strength and straightforwardness of character, I am not willing to let it pass unchallenged. I have gone carefully through Mrs. Gaskell's work for the express purpose of finding the paragraph upon which this charge is based, and, I am glad to say, without success; and now I ask, can it be that she whose keenly sensitive nature grew rigid with mingled apprehension and anger at the too near approach of some acquaintance "for whom," she acknowledges in a letter already quoted, she "felt both friendship, gratitude, and esteem," actually underwent such radical change in tastes and temperament, and also in principles cherished and advocated for a lifetime, as to consent to wed one she did not love, one of wingless mind, painfully practical, prosaic, and plodding?

Some time after her wedding-day she writes to a friend, "My life is different from what it used to be. May God make me thankful for it! I have a good, kind, attached husband, and every day my own attachment to him grows stronger." Her marriage-days, though few, were cloudless and full of the quiet charm of fire-side content. Her sky, so long curtained and storm-swept, was for one brief hour, just before the nightfall of death, lit with a glorious golden glow. To help her husband in his humble parochial duties, she with cheerful promptness laid by her pen, though to her it had been such source of solace since her sisters died; and he, after she had been called to join those sisters company, prompted by the same spirit of affectionate self-sacrifice, remained in the lonely parsonage through

many long sad years in order that her aged father in his last days might not be left companionless.

The fact of Charlotte's thus voluntarily laying aside her literary work out of pure wifely devotion is, to me, peculiarly impressive. An inscrutable Providence has stricken with the palsy of death the hand and brain of many an inspired genius while in the very midst of some inimitable work. To Shakspeare and Shelley, to Dickens, Prescott, and Buckle, to Macaulay and Motley, precisely thus the summons came. The loss seems irreparable, for their last productions, like the wondrous palace left at day-dawn by the slave-genii of Aladdin in their precipitate flight to the under-world, stand now and must stand always, despite the skilled attempts of literary adepts to complete them, as fragmentary as they were left by their great projectors. God might thus have called our author hence; but he chose rather to grant her the high privilege, of her own free will, in obedience to the joint behests of love and duty, to devote that hand and brain, which could give outline and tint as by angelic touch, to routine parish duties, a class of work for which she was by temperament and habit alike unfit, and for which, in place of that gladdening consciousness of the exercise of singular creative might that had thus far carried her through, she must now depend on the conscious nobility of her heart's intent and on the sympathetic appreciation of him she loved. It was left to Thackeray, as editor of "*Cornhill*," to place on its pedestal her abandoned, half-chiselled statue. With the opening chapters of "*Emma*" the artist disappears, but in her stead comes a noble type of woman. Deeply as we miss the

uncompleted portion of that fiction, we find full compensation for its loss in this unique attestation of a wife's love.

With what an array of plausible arguments she might have defended herself had she decided differently! "These ignorant, uncouth Yorkshire artisans and their families," she might have urged, "are of too stern stuff to be moulded by my ethereal powers, while my extremely sensitive, shrinking nerves will but be torn and bruised by their rough handling. I cannot understand them, nor they me. It will be suicidal to defer to my husband's wish or judgment in so vital a concern. He, it is true, has a high sense of duty, but he is not in the least imaginative, esteems but lightly the rare gifts of a writer. My ideal world is all a blank to him. He would feel no loss, nor does he suppose any one else would, should I close down my desk forever. I can do infinitely more good in the sphere of the imagination than in any other. He is intellectually my inferior, and should defer to me, not I to him. I will follow the star of my destiny." Such specious reasoning did not swerve her from her better purpose. She was true in this last crisis, as she had been in all others through her terribly tempted life. However we may question the wisdom of such a sacrifice, we cannot but recognize and reverence even that self-forgetfulness of love that prompted her to make it.

I have called attention to Charlotte's stanch loyalty to her own individuality and her profound love of truth. I have endeavored to show how, through this loyalty and love, her works of fiction were naturally

and necessarily both realistic and psychological ; and, lastly, how they led her to earnestly advocate love's liberty, and still more earnestly to condemn any nuptial bonds not formed of love's links. There were two other phases of her character as marked as these, and which gave to the productions of her genius and to the record of her life a priceless value: they were the spirit of unflinching fortitude and of uncompromising devotion to duty. Her pen seemed never to tire of illustrating and urging the cultivation of these virtues. Her characters and incidents, her scenery and her reflections, seem to be ever permeated by their warmth, to be vitalized by them, and often rendered strangely luminous. Her works are written in a minor key. Through the richest melodies of her thought there blend tones of touching sadness. Her conceptions, though always brilliant and telling, are rarely born of bright and buoyant mood. Indeed, "*Villette*" excepted, there is rarely a flash or sparkle, rarely even a quiet, humorous smile. Her readers often complain of this. Yet there is no weak repining ; no faltering or turning back on the Plains of Indecision to catch one more glimpse of a beloved Sodom ; no sinking under life's burdens ; no bitter, burning, blinding tears over the graves of life's dead hopes. There is, instead, a patient submission, a devotion to duty, a victorious faith. "I disapprove everything Utopian," such are her brave words. "Look life in its iron face, stare reality out of its brassy countenance. . . . I believe, I daily find it proved, that we can get nothing in this world worth keeping, not so much as a principle or a conviction, except out of purifying flame or through

strengthening peril. We err, we fall, we are humbled ; then we walk more carefully. We greedily eat and drink poison out of the gilded cup of vice or from the beggar's wallet of avarice ; we are sickened, degraded ; everything good in us rebels against us ; our souls rise bitterly indignant against our bodies ; there is a period of civil war ; if the soul has strength, it conquers and rules thereafter. . . . Submission, courage, exertion when feasible, these seem to be the weapons with which we must fight life's long battle."

What more practical lessons taught, what healthier tone found, in all literature ? These convictions were thrown into spirited drama in that parting scene between Jane Eyre and Rochester, and in succeeding events, and afterward in that between the same little Jane and St. John Rivers. The memory of her signal victories will be a pole-star, a beckoning hand, a voice of cheer to many of life's lost mariners. In the career of Lucy Snowe, as pictured in "*Villette*," these same sentiments are presented so repeatedly and so vigorously that it would seem impossible to overestimate the value attached to them by the earnest Charlotte. These features are especially interesting and significant from the fact that this book is largely autobiographic, the author having in *Lucy* sketched with singular fidelity her own temperamental and intellectual idiosyncrasies, and in *Lucy's* tempestuous career having disclosed one of the most perilous periods in her own personal history. In fact, we need to go to the life of Charlotte Brontë, rather than to the products of her pen, marvellous and masterful though they be, to find the best embodiment of those grand stalwart virtues of fortitude

and fidelity. While she is watching anxiously her loved Emily each day growing feebler with fatal disease, while her father is threatened with blindness and undergoing a painful and tedious treatment, while her bright brother Bramwell is sinking deeper into dissipation and disgrace, while "The Professor," her first work of fiction, is meeting only with repeated rebuff, she, with unflinching nerves, without a moment's repining, resolutely toils away over the pages of "Jane Eyre." Between the completion of the one and the commencement of the other of these two productions not a day is suffered to intervene as a respite from labor. How, in the face of these facts, can we have the heart to criticise the sombre hues on her canvas? The wonder is she can write at all. The glory is that in her brave heart there is the same self-mastery, the same grand triumphing over trial, which, with fertile fancy and with burning words, she impersonates in her pages.

This instance by no means stands solitary. Her history presents frequent parallel. The first half of "Shirley," the brightest and healthiest of all her works, the most charming of love-stories, is written while Emily and Anne are fading before her eyes; the last half, after the grave has forever closed over them and she is left alone. It is written in that same cold stone parsonage, now so still. It is written in that same room, the old trysting-place of the sisters, now so full of mournful memories, with the same window-outlook over weather-beaten marble that has stood so long in sad sentinel over the sleeping forms of the village dead. It is written despite the affectionate and frequent solicitations of friends to visit them and leave the pestilential

air and harrowing associations of Haworth. Her father, old and feeble and bereaved, needs, as she thinks, a daughter's constant care. Here is her post of duty. Here she shall stay till the Great Captain of the Guard comes with his relief. Passages in her letters clearly suggest that this her resolution was not reached without desperate battle against all her natural inclinations, and was not maintained except through the sterling temper of her mind and through her steadfast sense of duty. "I can hardly tell you," she writes, "how time gets on at Haworth. There is no event to mark its progress. One day resembles another, and all have heavy lifeless physiognomies. I feel as if we were all buried here. I long to travel, to work, to live a life of action. . . . The evils that now and then wring a groan from my heart lie in my position, not that I am a single woman and likely to remain one, but that I am a lonely woman and likely to be lonely. But it cannot be helped, and, therefore, imperatively must be borne, and borne, too, with as few words about it as may be."

Constancy and devotion never find home in a human heart without richly blessing it. Through those long weary months that came and went leaving their impress on the destinies of the inmates of the old parsonage, Charlotte in the hush of the evening, after the lights were out in the house, while she paced to and fro over the stone flagging, rested her frail form, I am privileged to believe, in the sweetly comforting illusions of fancy, against those of her dear ones pillowed in a dreamless sleep. Could the veil have been lifted during those night vigils, she would not have been found companionless. We can have but faint conception of the exalted

enthusiasm of her joy, composing in those privileged hours of thought those touching tributes of affection that adorn her pages. To be enabled through the enchantments of fancy to place her sisters under more favoring circumstances than befell their earthly lot; to unfold their noble traits of character and their rare intellectual gifts, which were but closely-folded buds when the frosts of death fell on them, into perfect flower under more propitious skies, and at last to extort from the world for them its tardy praise, was a high privilege, which her large nature well knew how to prize, increasing a thousandfold the keen delight that the free play and the conscious magnetism of the imagination ever award to true genius. While thus about her heart twined the tendrils of old loves and before her rapt vision passed transfigured memories in shining apparel, she gained fresh courage to wait her summons to join the company of her sisters on moors where no chill winds blow nor black frosts blight the heather's purple bloom.

Two years elapse after the publication of "Shirley," and Charlotte again places a canvas on her easel, this time to paint, with many a heart-pang, yet with most conscientious faithfulness, a portrait of herself, and to sketch in the background, with all her characteristic, graphic power, those spiritual battle-scenes through which, while a resident of Brussels, she was called to pass. This covered the darkest period of her history. Her soul here was brought to crucial test, received its baptism of fire, passed the turning-point in its destiny, grew through suffering and struggle into the fulness of the stature of Christ. It must have been a terrible

trial to her to revert thus to those tempest-tost days, to live them over again, as she must have done to be able with such condensed passion to picture them with her pen. Had the storm spent its fury and been swept away, or even had bits of blue sky brightened in the cloud-rifts, or the bird-songs of some new hope burst out above the distant mutterings of the thunder, there might have been a sacred, subdued pleasure in the retrospect; but such were not the circumstances under which Charlotte now wrote. During the two past years she had visited the "Big Babylon," and found its gayeties, excitements, and publicity ill suited to her shy soul, so long schooled by sorrow and seclusion. She had gone back to her desolated Haworth home oppressed with the thought that the gates of the bright and busy world were shut behind her and she would never again raise her hand to thrust back the bolt.

Her three sole companions after her sisters' death were, as she writes a friend, Solitude, Remembrance, and Longing. She takes from her desk the rejected manuscript, whose leaves, grown yellow during the long neglect, are still covered by the same soiled wrapper on which six publishers set six black seals of condemnation. She opens it with a convulsive sob, so vividly does it recall and place in sharp contrast to her present loneliness the scene of herself and her sisters sitting around the table, each busily penning her own rapidly-rising fancies, and in the succeeding evening's hush reading and criticising what they have written. She, however, has made up her mind to build out of the old story a new one, to lift the veil, for the encour-

agement and guidance of earth's foot-sore and fainting pilgrims, from some of the most sacred secrets of her inner life, disclosing the severe discipline, the painful processes of growth, through which Providence has called her soul to pass.

To fully measure her fortitude and fidelity to duty we should keep in mind how shy and reticent were her ways, how acutely sensitive and despondent her temperament, how seriously shattered at this time her general health. We should also note with what unsparing and probably undue criticism she exposed the negative weaknesses as well as more positive faults of Lucy Snowe, her second self,—with what keen analysis she dissects her peculiarities of disposition and her intellectual and moral traits.

There remains to us the pleasant task of showing to her the charity she refused to show herself, of believing that in her anxiety to paint faithfully every deformity she has given to defects of temperament a coloring due only to perversities of will. That scene in which Lucy visits the confessional of an alien faith is a chapter out of her own personal history, disclosing to us what emotional intensity lay hidden under a formal deportment, and how resistless and fraught with danger became her heart's stress when driven by months of rigorous repression into a fit of blind frenzy. Out of just such ill-adjusted lives, full of yearning and unrest, out of just such imprisoned souls, come those great thoughts that never die.

We should note further with what conscientious thoroughness she handles the character of the erratic, irascible, flashing-eyed Paul Emanuel, at heart so sym-

pathetic and constant, though she still with tearful tenderness recalls his prototype as one who despite all his defects had finally commanded her esteem and won her love, only to be parted from her forever by the hand of some cruel fate. The temptation to throw over the delinquencies and defects of Paul and Lucy a hiding mantle she resolutely withstood, adhering to her purpose of showing how rude, drossy ore was finally refined through fiercest fires into finest gold.

Charlotte's unswerving devotion to duty appears also in the perfection of her work. No pressure of physical or of mental pain could induce her to leave a sketch or a metaphor without subjecting it to closest scrutiny. There is not a slovenly or immature line to be found in all her works. Though every sentence of this last book "was wrung from her as if it had been a drop of blood, though its chapters were built up, bit by bit, amid paroxysms of both physical and spiritual anguish," yet such was her supreme triumph over every discouragement, such her persistent, painstaking thoroughness, such her wondrous might of mind, her gifts of endurance and of utterance, that "*Villette*" has justly been pronounced "a great masterpiece, destined to hold its own among the ripest and finest fruits of English genius."

Charlotte's fortitude and fidelity are especially conspicuous from the fact that there was in her nature so little of the element of hope. Though the gloom that pervades "*Villette*" and other of her novels is deep, it is never despairing: while it marks a life of sorrow, it marks also a triumph of will and of the sense of duty, imparting to all she wrote a noble grandeur. While

her thoughts are seldom bright, they are never bitter. Her conceptions abound in vigorous masculinity. Her sentences are dauntless battle-cries. She knew no surrender, but with firm front she met life's ills and mastered them. She proved herself competent to bear without flinching even the scowl of death, there was in her mental frame-work so much of the Brontë iron and adamant. One of her late biographers tells us that Mrs. Gaskell widely mistook her disposition in this respect when she asserted that she was a victim of secret terrors and of superstitious fancies. It is related of her that when a school-girl of fifteen, at Roehead, she one evening resolutely left her mates shivering in fright about the fire, and, without any light, mounted unhesitatingly to a distant garret which a general belief had peopled with ghosts.

Her style is stamped with this spirit. It is rarely, if ever, buoyant, yet is always strong, straightforward, intrepid, determined, impassioned, outspoken. It impresses us with the idea of one that has the hardihood to break through the trammels of form and fashion,—that dares think aloud and plainly tell unpleasant truths,—that solemnly, sternly looks at life. Never was style so moulded by the embodied thought, never was thought so burnt into the brain. She quickens us into new life by her fiery, direct declarations, by her impressive presentations of the possible achievements of purpose and will. While we are filled with wonder at her remarkable powers, her almost miracles of thought, are touched with sympathy by the sorrow of her life, we are more especially impressed by the hallowed victories of her unflinching, all-conquering will.

Sometimes the wish comes to us that her heart, always so tender and true, had been less tried and more triumphant; that her cheek, which had never blanched with fear, had flushed with hope; that her eye, with glance so deep, so full of love and longing, had kindled with more of glad sunlight, had oftener caught the glory of the coming of the Lord. But no; Providence had appointed that she should develop "through purifying flame and through strengthening peril." That she accepted her lot without a murmur is the more praiseworthy from the fact that she had amid it all so little of the sustaining power of hope.

That she was also so shy and sensitive and nervous adds greatly to the fortitude and fidelity she displayed. These weaknesses were so deeply ingrained that they survived the desperate battlings of a lifetime. They were a source of great humiliation, at times of absolute torture. Although in her visits to London she was thrown into the society of various people, she never met strangers without a nervous tremor to be succeeded the next day by severe headache. In striving to overcome it she is said to have suffered acutely. To illustrate: at a house where she was once visiting, two sisters were invited to spend the evening: Charlotte sat silent and constrained until these guests commenced singing some Scotch ballads, when with kindling eye and quivering lip in utter self-forgetfulness she rose, crossed the room to the piano, and eagerly asked for song after song. The sisters begged her to come and see them the next morning and they would gladly sing for her as long as she liked. She thanked them heartily, and seemed delighted at the prospect, but, on reaching the house, the one who accom-

panied her tells us that Charlotte's courage utterly gave way, and that they walked some time up and down the street, she upbraiding herself all the while for her folly, and trying to dwell on the sweet echoes in her memory rather than on the thought of a third sister who would have to be faced if they went in. On another occasion while visiting a friend in Manchester she unexpectedly met a young lady in the parlor. Although she was gentle and sensible, the sight of her threw her into a nervous chill. Her frame fairly shivered with the shock.

That she was extremely sensitive we learn from a passage in one of her letters. "You have been very kind to me of late," she writes, "and have spared me those little sallies of ridicule which, owing to my miserable and wretched touchiness of character, used formerly to make me wince as if I had been touched by a hot iron: things that nobody else cares for enter into my mind and rankle there like venom. I know these feelings are absurd, and therefore I try to hide them, but they only sting the deeper for concealment." Yet this solitary, delicately-nerved woman never shrank from criticism, rather insisted on reading all adverse reviews of her works, though they would sometimes wring out tears; and she thus insisted simply because she thought they would do her good. Her life was a constant martyrdom, as she would not accept any means of escape which in the least jarred her moral sense. Harriet Martineau, who was never accused of indulging in fulsome eulogy, remarked that "Charlotte Brontë in her vocation had, in addition to the deep intuitions of a gifted woman, the strength of a man,

the patience of a hero, and the conscientiousness of a saint."

Her fortitude lifted her not only above weak repining and bitterness, but even above a spirit of stern stoicism into glad sunlight, into love's largest liberty. Like sainted Stephen,—

" Looking upward, full of grace,
She prayed, and from a happy place
God's glory smote her on the face."

Paulina, unique among all the author's personages for her ethereal, wraith-like qualities and for her being purely a product of the imagination, could have been born only out of a courage that had conquered calm. It is because there is here revealed in letters of living light the holy quiet and content, the even glad expectancy, which this Christian woman at the last attained, I love to recall the character and career of the petite Paulina. She is surrounded by the kindest influences, for they are essential to her development. Fierce heats or driving storms would have withered or crushed her. She is one of those spiritual sensitive-plants, one of those tender exotics brought to this planet by some visiting angel from the celestial gardens fed by dews and fanned by gentlest breezes. She needed and found a sheltered nook, a softened sky. Nature and society sometimes give these, and are repaid by a tender grace of form and by a delicacy of tint and fragrance. Such people are as essential to society as flowers to the landscape. The mountain-peak, the tameless torrent, the oak on whose bole are the scars of centuries, God in his wisdom has associated with

gently undulating meadow-land and purling brook and waving grass-blade and silvery floating flecks of cloud. Charlotte recognized this, and so ordered that Paulina's lines should fall in pleasant places. The artist who conceived a Rochester proved competent also to conceive a Paulina,—a boulder and a blue-bell,—such was her width of glance, such her world-embracing sympathy.

Her sense of duty was so strong it made her deaf to every suggestion of envy and keenly alive to every call of friendship. She requested her publishers to delay the issue of "*Villette*" till "*Ruth*," written by Mrs. Gaskell, had fully found its way into the channels of trade. Such magnanimity is sadly rare among authors.

She wrote to one of her intimate friends, "I should grieve to neglect or oppose your advice, and yet I do not feel it would be right to give Miss Martineau up entirely. There is in her nature much that is very noble; hundreds have forsaken her, more, I fear, in the apprehension that their fair names may suffer if seen in connection with hers than from any pure convictions, such as you suggest, of harm consequent on her fatal tenets. With these fair-weather friends I cannot bear to rank; and for her sin, is it not one of those of which God, and not man, must judge?" This is that liberal-mindedness, that heaven-born charity, which so often fell from the lips and was always carried out in the life of our Saviour.

Such was her sense of duty, the absorbing labors of authorship never betrayed her into untidy or disorderly habits or led her to neglect any of her home-cares. It is said of her that after she had entered upon an active

literary career, after "*Jane Eyre*" had met success, she did not lessen in the least her scrupulous oversight of her person or of the parsonage. Even on those days when her brain was on fire, when her thoughts flowed fast and free, she suffered the appointments of the household to fall into no neglect, and this is especially noteworthy from the fact that her creative impulse was, as she had declared in her description of Lucy Snowe, "the most intractable, the most capricious, the most maddening of masters, yielding its significance sordidly as though each word were a drop of the dark ichor of its own deathless veins."

It was her supreme sense of duty working in unison with the promptings of her new love that determined her to devote, as we have already noted, to humble parochial cares the closing months of her life. We cannot measure her temptation, her sacrifice, her glorious triumph, unless our own thoughts, too, are eagle-winged,—unless our own souls have thrilled with the stirring trumpet-call of masterful, creative genius. That she discharged this final trust with saintly fervor and fidelity, we have eloquently evidenced to us in the remarkable circumstances that attended her funeral. Not quite one short year had flown since with glad heart-beat she had stood at the church altar. Now, with stilled pulse and ashen cheek, she, borne by loving hands, within the altar-rail passed again, robed in wedding dress, the bride of Death. It is told us that, as but one out of each family in the parish was bidden to the parsonage, it became an act of great self-denial in many a household to give up to another the precious privilege of walking behind her bier to her burial. Those who

had been necessarily excluded thronged the church and the cemetery to catch one more glance of her whom they had learned to love. There was in that company that day, grieving as if her heart would break, a youthful Mary Magdalen, more sinned against than sinning, who had found in Charlotte a sympathizing and a helping sister. It is said of her she never ceased to mourn. There was also a blind girl, who, prompted by the tenderest attachment, had besought those about her, though she lived four miles away, to lead her along the roads and over the moor-paths that she might hear "Earth to earth, dust to dust," as they laid to rest one who so many times in her distress had been to her God's angel.

In this my attempted character-analysis I have endeavored to gather under the four cardinal characteristics of supreme love of truth, of a pure and pronounced individuality, of an unshaken fortitude, and, lastly, of an unswerving devotion to duty, the incidents and the ideas which must ever remain associated with the name of Charlotte Brontë.

It is to me a very sad reflection that after the plucky parson, whom, despite all his eccentricities and shortcomings, we can but admire as one of nature's stalwarts, had entered that silent city which he had so often looked out upon from his study-window, his patient armor-bearer, the husband of Charlotte, should think best to go back to Ireland, that the incumbency of Haworth should be given to a stranger, and that new faces and new modes of life should break in upon the many tender associations that cluster about those rooms in which once so closely nestled the little motherless children, kindling

their quaint enthusiasm and pluming their wings for flight, and in which in after-years the three sisters wrote their first stories, and in the evening hush arm in arm paced to and fro in unchecked interchange of love and longing.

It is to me a reflection still more sad that latterly there should be so little of sympathetic appreciation of the hero-worship which has made of Haworth a world's Mecca, that in order to check the troublesome tide of pilgrims there should be a studied removal of every Brontë memento save the moors, the old kirk and parsonage, and the group of graves. But the boorishness or piqued pride of a few obscure village vandals is happily powerless to check the world's enthusiasm, to dim its remembrance, or in the least to lessen its painful sense of loss. Indeed, I predict that after time has torn down into shapeless ruin the solid stone walls within which the Brontë sisters once battled so bravely, and has levelled and hidden with heath bloom their last resting-place, in the world's imperishable palace of thought the Brontë apartment will take rank as one of memory's privileged presence-chambers; and that in seasons when faith falters and friends fail, when cares oppress and disappointments and disasters come with crushing weight, pilgrims will throng its threshold that they may stand in the presence and feel the thrilling power of its grand impersonations of Christian dauntlessness and constancy.



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